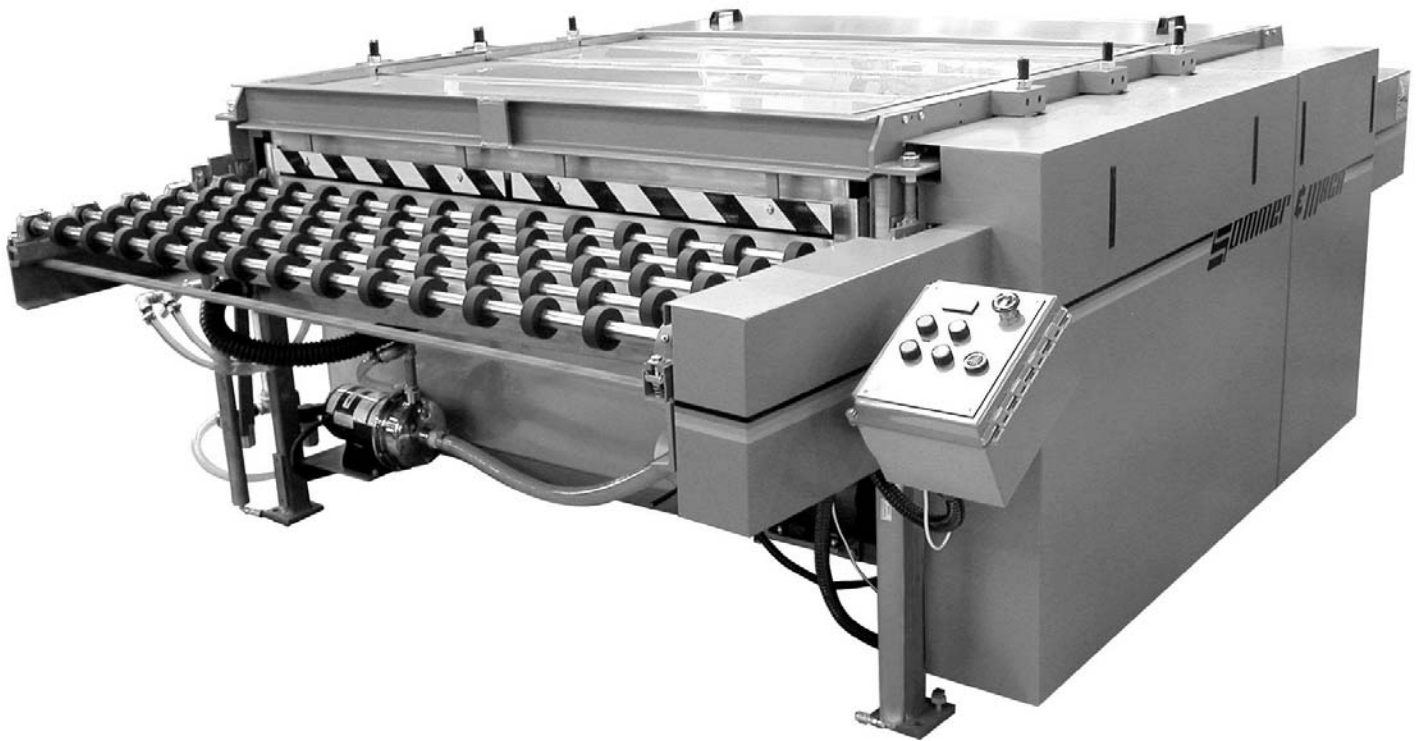

**TILT TOP HD GLASS
WASHING MACHINES
OPERATION AND MAINTENANCE
MANUAL**



Sommer & Maca Industries, Inc.

5501 West Ogden Avenue

Cicero, Illinois 60804

Tel: (708) 863-5446 / (773) 242-2871

Fax: (708) 863-5462

ATLANTA / CHICAGO / DALLAS / MOONACHIE / LOS ANGELES / SANTA CLARA

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SECTION 1

SAFETY

FAILURE TO OBSERVE THE WARNINGS, CAUTIONS AND INSTRUCTIONS LISTED IN THIS MANUAL AND ON THE DECALS ATTACHED TO THW GLASS WASHING MACHINE COULD CAUSE SERIOUS INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

GENERAL SAFETY INFORMATION

DON'T TAKE CHANCES!

Introduction

This manual contains instructions and operating and maintenance procedures for Somaca Glass Washing Machines (herein called "Washer"). The machines must always be operated and maintained in accordance with the instructions and procedures contained in this manual. Only qualified personnel thoroughly familiar with the operating and maintenance instructions should operate and maintain this equipment.

Safe Operating Considerations

Safety must be observed through all facets of operation and maintenance. Proper tools and operating procedures must always be used to prevent accidents that could cause injury to personnel or damage to equipment. Safe, reliable operation and long service are dependent on three important considerations:

1. *Care exercised during installation*

The most important single factor of installation is the alignment and leveling of one to three sections (large machine) that comprise the Washer. These must be installed properly on a solid floor to maintain critical alignments.

2. *Quality and frequency of inspection and maintenance*

Frequent inspection and recommended lubrication procedures must be performed to ensure safe and trouble-free operation and machine longevity.

3. *Common sense approach to operation*

The Washer is not necessarily a complex device due to its functionality and the flexibility it offers; however, there is no witchcraft involved in its operation. Patience and time spent in acquiring familiarity with the aspects of operation will reveal most of its secrets. The most important rule is:

NOTES, CAUTIONS AND WARNINGS

1. *Notes*

NOTE

The notes contained throughout this manual provide additional information to carry out the operating and maintenance procedures. Any particular note is listed just prior to the procedural step to which it applies. This is an example of a NOTE format.

2. *Cautions*

CAUTION!

The cautions in this manual contain instructions and information concerning operation and maintenance procedures that, if not followed, could cause damage to equipment, parts and facilities. Like notes, cautions are listed just prior to the steps to which they apply. This is an example of a CAUTION format.

3. *Warnings*

WARNING!

The warnings in this manual contain instructions and information concerning operation and maintenance procedures that, if not followed, could cause injury to personnel. Warnings also are listed just prior to the steps to which they apply. This is an example of a WARNING format.

SECTION 1

GENERAL PRECAUTIONS

The precautions listed below are in general; however, failure to practice them could result in personal injury or damage to property. These precautions are not all-inclusive. Specific cautions and warnings are listed throughout this manual. They may address issues that are peculiar to a specific operation or industry. In addition, employers are subject to the federal Occupational Safety and Health Act (OSHA) of 1970, as amended, that requires an employer to keep abreast of the regulations that are continually released under its authority.

WARNING!

1. **ALWAYS** operate and maintain the Washer in accordance with the instructions and procedures of this manual.
2. **ALWAYS** load glass onto the entry conveyor and allow the rollers to drive the glass into the machine. **DO NOT** feed glass directly into the main washing section by hand. **DO NOT** wear loose fitting clothing that could get caught in the moving parts of the machine. **DO NOT** exceed the capacity of the Washer.
3. **DO NOT** open inspection doors, covers or guards while the unit is in operation except in special circumstances that are addressed later in this manual. **NEVER** work on the Washer or related components unless the electrical power and motor drive have been locked out and tagged. The National Electrical Code requires a manually operated disconnect switch located within sight of the machine or other means by which the conductors of the circuit can be disconnected from their source of supply (Parts F and I of Article 230).
4. **DO NOT** use the Washer for any purpose for which it was not designed. It is to be used only to wash flat float, plate, tempered, specialized glass and mirror. All tags, stickers or tape should be removed prior to washing.
5. **DO NOT** poke or prod into the openings of the Washer with a rod, bar or stick.
6. **ALWAYS** have a clear view of the loading and unloading points and all safety devices of the Washer. Be aware of all the locations of the emergency stop switches.
7. **KEEP** the area around the Washer free of debris and obstacles. This includes the electrical control cabinet, detergent and rinse tanks, and entry and exit conveyors.
8. **NEVER** operate the Washer without guards and all safety devices in position and functioning.
9. **ALWAYS** allow the Washer to stop naturally by ramping down. **DO NOT** attempt to artificially brake or slow the movement of the Washer or any of its components.
10. **ALWAYS** wear safety glasses, proper clothes and other necessary safety equipment while operating and maintaining the Washer. When in doubt, consult with the shop safety representative(s).
11. **ALWAYS** wear safety glasses, proper clothes and other necessary safety equipment while handling glass. When in doubt, consult with the shop safety representative(s).

WARNING!

Many of the photographs used to illustrate this manual were taken of partially assembled machines or of machines with guards removed for clarity. This should not be construed as a safe method of operation when running this machine. **NEVER** operate the Washer unless all interlocks, safety devices and guards are operating properly and properly installed. Failure to do so could result in injury or death.

SECTION 2

DESCRIPTION

GENERAL DESCRIPTION

All Somaca Glass Washing Machines operate in basically the same way. The glass is scrubbed clean (sometimes with a pre-wash) by cylindrical bristle brushes as it is conveyed through the machine on rubber covered rollers. Spray pipes apply detergent water followed by rinse water to the top and bottom of the glass. After this process, the glass is dried by internal air dryers that remove the water from both surfaces, leaving the glass thoroughly dry.

Four brush models can be used with regular plant water to remove such contaminants as fingerprints, shop dust or glass grindings. Cold water is satisfactory in most cases; however, warm water is preferred.

Six brush models with the recirculating detergent system are recommended for cutting oil, grease and heavier contaminants.

Four and six brush Washers use the same air blast method. However, six brush Washers typically have more air knives for drying with a larger blower.

36 inch GLASS WASHING MACHINE

Model TTW 366, 6 Brush Washer

Capacity - The Washer accepts 5½ inch glass circles up to full width sheets from single strength to ¼ inch thicknesses. The line speed is variable from 0 to 35 feet per minute.

Brushes - The cylindrical bristle brushes are 3½ inches in diameter, mounted on stainless steel cores and individually adjusted for proper height by raising the tilt-top. Brushes are V-belt driven by a common motor.

Drying System - A 10 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass.

Rollers - The feed and pinch rollers are 2½ inches in diameter, made with stainless steel journals and heavy steel tubing with a precision ground Nitrile covering. The rollers are driven by a ⅛ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a one piece steel weldment with machined upper sidebars. The infeed and unloading conveyors are two feet long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved. The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 4½ gallons per minute without the Aqua-Miser rinse; about 1½ gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 366	36 inch	6 brush	one 2 HP one ⅛ HP	4 feet 6 inches	6 feet 4 inches	3 feet 6 inches	10	5 kW

SECTION 2

48 inch GLASS WASHING MACHINE

Model TTW 486, 6 Brush Washer

Capacity - The Washer accepts single strength to ½ inch thick glass, from 11 inches wide 14 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - A 15 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. A baffled enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 2½ inches in diameter, made with stainless steel journals and heavy steel tubing with a precision ground Nitrile covering. The rollers are driven by a ¼ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a one piece steel weldment with machined upper sidebars. The infeed and unloading conveyors are two feet long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material. Plumbing, tanks, detergent/rinse cabins, pans and covers are constructed from stainless steel.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved.

The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 6 gallons per minute without the Aqua-Miser rinse; about 2 gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 486	48 inch	6 brush	one 3 HP one ¼ HP	6 feet 4 inches	9 feet	3 feet 8 inches	15	10 kW

SECTION 2

60 inch GLASS WASHING MACHINE

Model TTW 606, 6 Brush Washer

Capacity - The Washer accepts single strength to ½ inch thick glass, from 11 inches wide 14 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - In the 6 brush Washer, a 15 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. An insulated enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 2½ inches in diameter, made with stainless steel journals and heavy steel tubing with a precision ground Nitrile covering. The rollers are driven by a ¼ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a one piece steel weldment with machined upper sidebars. The infeed and unloading conveyors are two feet long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material. Plumbing, tanks, detergent/rinse cabins, pans and covers are constructed from stainless steel.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved.

The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 7½ gallons per minute without the Aqua-Miser rinse; about 2½ gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 606	60 inch	6 brush	one 3 HP one ¼ HP	6 feet 9 inches	10 feet 3 inches	3 feet 8 inches	15	15 kW

SECTION 2

72 inch GLASS WASHING MACHINE

Model TTW 726-½, 6 Brush Washer

Capacity - The Washer accepts single strength to ½ inch thick glass, from 13 inches wide 16 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - In the 6 brush Washer, a 20 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. An insulated enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 3 7/8 inches in diameter, made from heavy steel tubing with a solid neoprene covering. The conveyor rollers are ring type and driven by a ½ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a three part steel weldment with machined upper sidebars. The infeed and unloading conveyors are 3 feet 2½ inches long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved. The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 9 gallons per minute without the Aqua-Miser rinse; about 3 gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 726-½	72 inch	6 brush	one 5 HP one ½ HP	8 feet 2 inches	14 feet	4 feet 4 inches	20	10 kW

SECTION 2

72 inch GLASS WASHING MACHINE

Model TTW 726-¾, 6 Brush Washer

Capacity - The Washer accepts single strength to ¾ inch thick glass, from 13 inches wide 16 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - In the 6 brush Washer, a 20 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. An insulated enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 3 ⅞ inches in diameter, made from heavy steel tubing with a solid neoprene covering. The conveyor rollers are ring type and driven by a ⅛ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a three part steel weldment with machined upper sidebars. The infeed and unloading conveyors are 3 feet 2½ inches long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved. The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 9 gallons per minute without the Aqua-Miser rinse; about 3 gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 726-¾	72 inch	6 brush	one 5 HP one ⅛ HP	8 feet 2 inches	14 feet	4 feet 4 inches	20	10 kW

SECTION 2

84 inch GLASS WASHING MACHINE

Model TTW 846, 6 Brush Washer

Capacity - The Washer accepts single strength to ¾ inch thick glass, from 13 inches wide 16 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - In the 6 brush Washer, a 25 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. An insulated enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 3 ⅞ inches in diameter, made from heavy steel tubing with a solid neoprene covering. The conveyor rollers are ring type and driven by a ⅛ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a three part steel weldment with machined upper sidebars. The infeed and unloading conveyors are 3 feet 2½ inches long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved. The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 10½ gallons per minute without the Aqua-Miser rinse; about 3½ gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 846	84 inch	6 brush	one 5 HP one ⅛ HP	9 feet 2 inches	14 feet	4 feet 4 inches	25	12 kW

SECTION 2

96 inch GLASS WASHING MACHINE

Model TTW 966, 6 Brush Washer

Capacity - The Washer accepts single strength to ¾ inch thick glass, from 13 inches wide 16 inches long to full width sheets. The line speed is variable from 0 to 35 feet per minute.

Brushes - The spiral-wound brushes in “dense-fill” construction are 6 inches in diameter, mounted on stainless steel cores and individually adjusted for proper height. Brushes are V-belt driven by a common motor and can be individually adjusted, to compensate for wear, by raising the tilt-top.

Drying System - In the 6 brush Washer, a 25 HP blower with an air intake filter is connected to four air knives; two knives above the glass and two knives underneath the glass. An insulated enclosure covers the drying system and reduces the noise to acceptable levels.

Rollers - The feed and pinch rollers are 3 ⅞ inches in diameter, made from heavy steel tubing with a solid neoprene covering. The conveyor rollers are ring type and driven by a ⅛ HP DC gear motor using chain and sprockets.

Bearings - The brushes are supported on ball bearings. The upper pinch rollers are mounted on pivoting brackets. The rotating action of the pivots smoothes the movement of the thicker pieces of glass through the machine.

Frame - The frame is a three part steel weldment with machined upper sidebars. The infeed and unloading conveyors are 3 feet 2½ inches long each. All sections that become wet through normal operation are either plated, coated or made from a corrosion resistant material.

Electrical - The control panel is mounted on the machine with conduit wiring. All electrical circuitry is built to NEMA 12 specifications to meet OSHA requirements. Every panel is UL approved. The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage.

Water - A water/detergent solution is applied through spray pipes; one on either side of the glass per brush. Threaded plugs on the spray pipe ends allow for easy cleaning. The water usage is about 12 gallons per minute without the Aqua-Miser rinse; about 4 gallons per minute with. There will be minimal (zero) consumption (due to drag out and evaporation) when used with the Aqua-Miser ready option.

Options - The recirculating detergent system, miser rinse system, Aqua-Miser ready (zero water), auto glass thickness adjustments, power brush adjustment and hydraulic power tilt-top are all options. A wetted parts package constructed out of stainless steel for use with a de-ionized water system is also an option.

MODEL NUMBER	STYLE	BRUSH	MOTORS	WIDTH	LENGTH	HEIGHT	BLOWER HP	HEATER
TTW 966	96 inch	6 brush	one 5 HP one ⅛ HP	10 feet 2 inches	14 feet	4 feet 4 inches	25	12 kW

SECTION 3

RECEIVING

UNCRATING

Every Washer is tested and adjusted to work perfectly before shipment. Every component is tested in actual conditions to guarantee proper operation before shipment. It is essential that the Washer is received and handled properly before installation to ensure that it was received in exactly the same condition as it was when it left the factory and that it reaches the site where it will be set up for operation without damage.

WARNING!

The crate with the Washer, dependant on the machine size, will weight between 2,000 to 4,000 pounds and requires adequate lifting devices to move the crate and components.

Inspecting the Crate

Crate damage could indicate that the shipment has been mishandled and that the machine could be damaged. It is very important that the machine be inspected for exterior damage immediately upon receipt. Use the following procedure for inspection:

- 🔊 Check all surfaces of the crate for gouges, tears or holes that could have been made by the forks of a forklift or some other lifting device.
- 🔊 Check for crushed corners, edges or framing members that could indicate that the crate was dropped.
- 🔊 Check for broken crate straps and breaks or distortion in the framing of the crate.
- 🔊 Inspect the plastic wrappings that cover the components and assemblies. Carefully note any damage to the wrappings.
- 🔊 Remove the framing and plastic wrappings as necessary to inspect the machine, especially in the areas of obvious visible damage.

Notification

Document any and all damage to any part of the Washer or ancillary equipment. Notify the carrier and Sommer and Maca Industries, Inc. immediately upon detection of any damage.

Removing the Crate

- 🔊 Cut any straps and remove the crate from the skid. Note that the frame of the Washer is bolted to the wooden skid.
- 🔊 Check the machine for damage, especially in an area that has evident crate damage that was noticed in the inspection procedure described previously.
- 🔊 Use a proper lifting device and lift slings to raise the machine off of the mounting skid. It is recommended that the machine be in the desired location, if possible, so that handling of the machine is kept to a minimum.

SECTION 4

INSTALLATION

FACILITIES REQUIREMENTS

Floor Space

The Washer requires a location with an adequate area to permit easy access around the machine with no obstructions. The detergent and rinse tanks require an additional space, equal to the width of the Washer, from the center section on the control panel side of the machine. This is necessary if the tanks are to be removed for cleaning or maintenance. The floor area must be clean and free from grease, oil and water. When installing the machine, consideration should be given to the size of glass to be used to ensure proper clearance of the infeed and unloading conveyor sections of the machine when loading and unloading the glass.

Compressed Air

If an optional power lift for the height adjustment is used, an air supply is required capable of delivering 100 PSI at 5 CFM. The air supply connection is located at the control panel side at the infeed conveyor of the Washer main body.

Electrical Requirements

The power requirements are 3 phase, 60 cycle, 208/230/460 volts. The electrical panel name plate specifies the full load amperage (other power sources can be accommodated on special order). The power source must also have a safety disconnect switch for servicing the Washer. Local electrical codes may require this switch. All wiring must meet local electrical codes.

CAUTION!

Ensure that the Washer is wired for the SAME VOLTAGE as the voltage supplied to the machine. Remember, 208 volt IS NOT 230 volt!

WARNING!

Ensure that electrical connections and lines do not contact water.

WARNING!

The EMERGENCY STOP slap switches **DO NOT** disconnect power from all components of the machine.

WARNING!

The main power source safety disconnect switch controlling the main power to the machine must be in sight of personnel at the machine or must be capable of being locked OFF.

After Washer has been connected to power press the “ON” button. Open the detergent compartment cover and see if the upper brush rotates against the glass flow through the machine. If it is moving with the glass travel, change any of the two main wire leads that feed the main control panel.

Never change the wires to any motor directly. The wiring has been properly done at the factory and should not be altered.

A second check is to observe the rotation of the blower motor. This will also indicate if the main power supply to the machine needs to be rewired to achieve the correct rotation.

WARNING!

Properly ground the machine to reduce static charges.

If the Washer’s starters or heaters kick out, check for loose connections and for a low voltage supply.

Always check one motor to make sure that the Washer is properly wired for your applied voltage.

SECTION 4

Plumbing

CAUTION!

Before connecting the water supply lines, clean all pipes or any other connectors to remove chips, pipe dope and other debris. The spray pipe holes can be easily clogged.

A water supply line and accessible drain will be required for filling, cleaning and draining the detergent and rinse tanks and pumps. Ideally, a floor drain should be located close to the Washer for run-off and cleaning.

The supply line should feed the last rinse section with 80°F to 110°F water. Cold water can be used, but under high humidity conditions, glass may not dry adequately.

The Washer should be piped so that one shut-off valve will turn off all the water to the Washer. If a temperature control valve is used, a hot and a cold line should be connected to the correct side of that valve. If there is a separate shut-off valve for each hot and cold line, a setting for each can be set to achieve 100°F. Adjust the temperature by metering the hot and cold flow. A separate shut-off valve should control a hose to clean the Washer and fill the tanks.

Most Washers use a recirculating water system. Water from the fresh rinse collects in the recirculating tank. The tank has an overflow that must be connected to a drain. The drain lines from the drain pan and recirculating tank should be adequately sized to prevent water from building up in the pan or the tank.

Both the detergent tank and the recirculating tank should be connected from the bottom coupling to a floor drain. Install a shutoff valve to maintain the water level of the tank. The level should be within ½ inch of the overflow coupling.

CAUTION!

Fill the tanks with water through the pumps (turned OFF) by pressure to eliminate trapped air that may result in pump seal failure.

If the overflow coupling has a direct connection to the drain, no shutoff valve is required. Do not interconnect the overflows from the two tanks; this will result in one tank draining into the other. A union on each tank should be used to connect to the drain. This will facilitate easy removal of the tank for cleaning or other service functions.

Water Requirements

If the Washer uses de-ionized water, it is preferable to use stainless steel or PVC pipes for most plant water or well water. All connections should be watertight to prevent any leakage.

CAUTION!

If de-ionized water is used without installing stainless steel or PVC piping, excessive corrosion on the wetted parts of the Washer will result. This will severely shorten the life of the machine.

CAUTION!

If softened water is used in the Washer, excessive corrosion on the wetted parts of the Washer will result. This will severely shorten the life of the machine.

Softened water will not improve the washing process. Softened water replaces the metal ions in the water with sodium ions, leaving salt spots and films on the glass. This reaction may not be visible immediately, but may appear on the glass later. This is most likely to result on the inside of insulated glass units after the desiccant has absorbed all the moisture from the inside surfaces of the glass.

Reverse osmosis is an ultra-filtration process that removes suspended compounds in the water, such as hard salts and calcium. Although this treatment will not remove dissolved ions, it may improve the water quality without the risk of damage to the Washer.

OPERATING INSTRUCTIONS

CAUTION!

Do not wash rubber-covered rollers with products that contain high levels of petroleum based compounds.

CAUTION!

If the Washer has a water heater, verify that the heating element is totally submerged in the water before turning the machine “ON”. Frequent checks of the water level during operation are highly recommended.

STARTING THE WASHER

- ☞ Verify proper electrical grounding of the Washer.
- ☞ Turn the main power switch on the electrical control panel to “ON”.
- ☞ Start the conveyor and adjust the speed to suit the operating conditions. Generally, the speed between 10 to 12 feet per minute (about 1/3 full speed) is a good start.
- ☞ Adjust the brushes. For instructions see **Section 6: Maintenance**.
- ☞ The glass thickness adjustment is made on the upper frame only. To adjust for thicker glass, loosen the upper nut(s) on the upper frame support and turn the lower nut(s) to raise the frame. To adjust for thinner glass, loosen the upper nut(s) on the upper frame support and turn the lower nut(s) to lower the frame. When the adjustment is completed, retighten the upper nut(s) to secure the frame.
Some Washer models have the optional patented Somaca air-activated glass thickness adjustment system. The clearance bars a factory-set to prevent the insertion of glass that is too thick.

- ☞ If the Washer uses a detergent tank, ensure that the water level is above the pump intake. Push the “**SPRAY CHECK**” button on the operator console to start the pumps. Add enough detergent, according to the detergent manufacturer’s recommendations, to clean the glass. In some applications, detergent may not be necessary to produce clean glass.

CAUTION!

Strong solutions can damage rubber-covered rollers. Use only a detergent at the manufacturer’s recommended level.

- ☞ If the Washer has a water heater, set the thermostat to maintain a temperature of 120°-130°F. Higher temperatures may result in “steaming”. In any case, **DO NOT** exceed 170°F. Higher temperatures will damage the rubber rollers.

CAUTION!

Check the water level in each tank for correct volume.

- ☞ With the “**SPRAY CHECK**” button on, adjust the flow of the rinse water. A “fine stream” will help reduce fresh water consumption. A mixing valve or hot and cold shutoffs should feed the rinse section with water at 80° to 110°F.

CAUTION!

Too much water can cause poor drying.

- ☞ Push the “**SPRAY CHECK**” button again to turn the pumps off. Push the machine “**START**” button to begin running a rest piece of glass. Push the conveyor “**START**” button. Run the sample piece of glass through the Washer and inspect. Make any necessary adjustments.

SECTION 5

Cleaning Action Quality

The quality of the cleaning action depends primarily on these factors:

- 🔊 No detergent or too much detergent
- 🔊 Conveyor speed
- 🔊 Brush adjustment
- 🔊 Cleanliness of the Washer and the water
- 🔊 Proper detergent solution flow to the brushes
- 🔊 Proper rinse water flow to the brushes

The operator can vary the cleaning action of the Washer by increasing brush pressure on the glass, changing the conveyor speed, changing the detergent concentration or changing the temperature of the detergent solution. The Washer should have approximately a 3/4 inch of contact with the glass surface on each brush.

To make a brush adjustment, loosen the stop nuts at both ends of the brush. Turn the adjusting nut to raise or lower the brush. Retighten the stop nuts when completed.

NOTE

The slower the conveyor speed is, the longer the brushes can scrub the glass. It is better to slow the conveyors rather than to increase the amount of detergent or raise the water temperature.

TEMPERATURE CONTROLLER

On Washers equipped with the detergent option, the temperature of the detergent solution is regulated by a temperature controller. This is located on the operator control panel and displays the detergent solution temperature whenever the electrical power to the machine is on.

To heat the detergent solution to the setpoint temperature, the “**DETERGENT HEATER**” pushbutton must be on. Normal temperature control variation is ±4°F. when the Washer is running. If the pumps and conveyors are off, the control is much closer.

Setpoint Adjustment

The controller setpoint is adjusted to 130°F at the factory. To change the temperature controller setpoint:

OPERATION	DISPLAY
Power ON	Detergent Solution Temperature
Press SEL key	Setpoint Value: “ SV ” lamp is lit
Press UP or DOWN key	Setpoint value changes accordingly
Press SEL key to return to operational mode	Detergent solution temperature: SV lamp is off

SECTION 5

Auto-Tuning Procedure

The controller has been factory tuned at the time of machine assembly. In the event that it is necessary to retune, verify the proper water level in the tank(s) and follow these steps:

NOTE

Auto-Tuning is not necessary when the setpoint has been adjusted.

NOTE

Auto-Tuning may require as long as 1½ hours because of the high thermal inertia of the water. For more detailed information, refer to the manual of the manufacturer of the controller.

OPERATION	DISPLAY
Power ON	Detergent temperature
Turn on DETERGENT HEATER ; turn on SPRAY CHECK	Detergent temperature: pushbutton illuminated
Set the setpoint for 130°F using the Setpoint Adjustment above	
Allow one (1) hour for detergent temperature to stabilize at 130°F	
Press SEL key for three (3) seconds	ALM light blinks
Press SEL key until Auto-Tune parameter is reached	AT appears (as “ A7 ”)
If a “ 1 ” does not appear next to AT , press UP key	1 (appears as “ A7 1 ”) Auto-Tune at 100% setpoint
Press SEL key	Auto-Tune indication lamp at lower right blinks (Auto-Tune running)
Auto-Tune stops blinking	Displays temperature and Auto-Tune indication stops
Controller automatically returns to operating mode	

SECTION 6

MAINTENANCE

MAINTENANCE CONCEPT

This section is divided into four main parts:

- 🔊 Daily maintenance
- 🔊 Weekly maintenance
- 🔊 Monthly maintenance
- 🔊 Less frequent maintenance
- 🔊 This section will include information on frequency and type of lubrication, adjustments to specific areas and minor repairs.

DAILY INSPECTION

A clean, well-maintained Washer will always give cleaner, better results. Follow these steps every day:

- 🔊 Turn on the **SPRAY CHECK** and inspect the fresh water spray pipe. Clean if necessary.
- 🔊 After all of the spray pipes have been inspected, remove the covers over the air knives.
- 🔊 Run a piece of clean glass through the Washer that is wide enough to span the width of the roller.
- 🔊 Inspect the air knives for blockage on the air exit side. If an air knife is blocked, a streak of water will be visible on the top or bottom of the glass.

The daily inspection routine is especially important if you are washing glass prior to manufacturing insulated glass units.

DAILY MAINTENANCE

Water Tank(s)

Inspect the water tank(s) every day. If the glass is excessively dirty or is powder coated, clean the tank(s) once a day or, if necessary, more often. Follow these steps for routine daily maintenance:

- 🔊 Drain the water from the tank(s) by grasping the pin on the top of the standpipe in the tank(s) and removing.

- 🔊 Sponge the remaining water from the bottom of the tank(s) and wipe the inside clean.
- 🔊 Clean any debris from the return water tank's screen.
- 🔊 Clean the pump's discharge strainer.
- 🔊 Refill the tank(s).
- 🔊 Turn on the **SPRAY CHECK** and inspect the spray pipes. Clean any clogged holes or nozzles.
- 🔊 Check the return water tank's screen for debris and clean.

NOTE

Keep the Washer covered whenever it is practical, especially the discharge conveyor rollers.

WEEKLY MAINTENANCE

Blower Intake Air Filter(s)

CAUTION!

Replace the air filter(s) immediately if damage is evident.

Check the air filter(s) for dirt build-up. When the filter needs cleaning, remove and clean it with a vacuum. ***Do not*** use oiled filter units. The oil will eventually transfer to the glass through the drying system. A good practice is to keep a spare filter on hand to use while the dirty one is being cleaned.

Conveyor Chain

Lubricate all pinch roller bearings. Lubricate all conveyor roller bearings (if there are grease fittings). Add waterproof general purpose grease slowly with a grease gun until the grease begins to ooze from the bearing seals. ***Do not over grease!***

For bearings that have bronze bushings, use a high quality moly spray lubricant that will wick into the bushing.

SECTION 6

MONTHLY MAINTENANCE

Spray Pipes

Remove the pipe plug from the ends of the water spray pipes and clean using a Somaca circular wire brush. This brush is specific to the Washer size. For more information, contact Sommer and Maca Industries, Inc. for the brush part number for the Washer size.

Washer Surfaces and Pans

Clean the entire Washer from excessive grease and accumulated dirt. Remove broken glass and cullet from the pans.

Clean the dividers and covers. Scrape off built-up calcium and soap deposits. Flush the interior of the Washer with clean water using a garden hose nozzle.

BRUSH ADJUSTMENT

Brush Adjustment for Wear

- 🔧 Remove the brush drive belts and raise the upper frame.
- 🔧 Measure and record the smallest diameters of the upper and lower brushes (using a caliper or circumference (π) tape).

D_1 = lower brush

D_2 = upper brush

Lower Brush Adjustment

- 🔧 Cover the brush and the two adjacent rollers with a piece of glass that is the full width of the conveyor. Using bar soap, rub the bottom side of the glass for the entire length of the brush and approximately 6 inches wide before placing it over the brush. (When using this technique, the brushes ***must be dry.***)
- 🔧 Loosen the lower locking nuts on the brush supports.
- 🔧 Turn the upper nuts to adjust the brush position on the glass. A clockwise turn will raise the brush into the glass; i.e., a counterclockwise turn will lower the brush away from the glass. Each end of the brush will be adjusted to achieve a uniform area of contact (flat stripe) as seen on the glass when the brush is rotated by hand.

The following is a list of desired flat stripe widths, made into the soap film, for the specific brush diameters:

- 🔧 $2^{1/32}$ inch width for 3½ inch diameter brush
- 🔧 $2^{5/32}$ inch width for 5 inch diameter brush
- 🔧 $7/8$ inch width for 6 inch diameter brush

- 🔧 Measure the distance between the brush shaft and the lower frame rail. Adjust the brush shaft equally on both ends and tighten the lower locking nuts.
- 🔧 Adjust the glass thickness indicators to the lowest setting, “0 – ¼”.

Upper Brush Adjustment

Method 1

- 🔧 Calculate the correct distance between the brush centers and the exact worn brush diameters measured previously using this formula:

DISTANCE BETWEEN BRUSH CENTERS

$$\frac{(D_1 + D_2)}{2} + \frac{1}{16}$$

- 🔧 Adjust both ends of the upper brush until this distance from the shaft centers is obtained from the lower brush.

Method 2

- 🔧 Loosen the lower locking nuts on the upper brush supports. Use the upper locking nuts to raise or lower the brush.
- 🔧 Adjust the brush until it touches the lower brush. Rotate the upper brush by hand. Either resistance will be felt through the brush or the rotation of the lower brush will be observed to verify contact with the brushes. Measure the distance between the brush centers. Adjust the opposite end of the brush to the same distance. Spin the upper brush by hand again and feel the resistance. If there is too much resistance, repeat the adjustment procedure until acceptable.
- 🔧 Tighten the lower locking nuts.

SECTION 6

Glass Thickness Adjustment

The Washer allows for adjustment of the entire upper assembly to accommodate various thicknesses of glass. On pneumatic lift equipped Washers, the glass thicknesses are factory pre-adjusted. However, on manual glass thickness Washers, a gauge and pointer is provided as a guide. The following procedure is used to adjust the glass thickness:

- 🔧 Loosen the jam nut on one corner of the machine. Move the lower nut up or down.
- 🔧 When the pointer shows the desired glass thickness on the gauge, retighten the jam nut.
- 🔧 Repeat this procedure at each of the remaining three corners of the Washer.

Conveyor Chain Idler

Apply several drops of oil to all of the conveyor chain idlers and take-up sprocket bushings. A molybdenum disulfide spray lubricant is also acceptable.

Drive Chain



Do not overtighten the drive chain. This will result in a permanently stretched chain.

The drive chain will stretch with use and needs to be retightened periodically. The take-up sprocket (located on the infeed side above the gearmotor) is a chain tensioner mounted on a vertical channel. Loosen the appropriate nuts and draw the chain taught by sliding the tensioner into the chain to remove the excess slack. If the chain has been stretched beyond the adjustment of the chain tensioner, remove two links from the chain and reconnect the chain.

Blower Tube (Air Knife) Adjustment

The blower tubes (air knives) have slots that can be clogged due to contaminated air, even with the blower filter in place. If wet stripes are observed on the glass after running through the Washer, clean the slots by sliding a piece of flat metal $\frac{1}{32}$ inch thick or less through the slot to remove particles from it.

Belt Adjustment

The V-belts will stretch slightly with use and must be re-tensioned periodically to transmit full power without slippage. The brush drive belt is tensioned at the motor by lowering the motor base and locking it into place.

On Washers that have multiple drive belts, the belts must be matched in length to assure even distribution of the load. The belts must be replaced in matched sets. ***Do not*** make a set by mixing old and new belts.

Some Washers have a spring-loaded tensioner. The spring tension is adjusted by using the multi-holed mounting bracket. If the belts appear to be slipping, adjust the bracket for more tension.

Control Panel

The control panel is relatively maintenance free. However, fuses, relays and switches may require replacement occasionally.



Disconnect the main power to the Washer before performing any maintenance tasks on the control panel.

Use a fuse puller to replace any fuses. The circuit protector fuse may be replaced by hand.

Before replacing any switch, make a notation of where the wire attaches using the wire color and wire number. After disconnecting the wires from the switch, a new switch can be installed. The wiring is then done to the new switch following the previous wire notation.

To replace a relay, unplug it from the socket by pulling straight out. Orient the relay in the same manner (it will only fit in one way) and push the new relay in all the way.

SECTION 7

TROUBLESHOOTING

PROBLEM	CAUSE	POSSIBLE SOLUTION
<p>GLASS IS NOT CLEAN</p>	<p>Brushes are not contacting the glass</p> <p>Brushes not rotating or slowing down when the glass is contacted</p> <p>Brushes are worn</p> <p>Improper detergent concentration</p> <p>Cold water in the detergent tank - Heater not functioning</p> <p>Spray bars are plugged</p> <p>Dirty detergent or rinse water</p>	<p>Adjust brushes for wear or glass thickness (see Maintenance)</p> <p>Check for broken belts – Check the belt tension - Check the motor fuse/circuit breaker</p> <p>Adjust brushes so the worn areas contact the glass</p> <p>Consult the manufacturer’s recommendations for proper use of detergent</p> <p>Check the temperature setting – Check the heater fuses – Allow sufficient warm-up time</p> <p>Clean spray bar tubes out with a brush – Clean the holes out with a wire or drill bit</p> <p>Clean thoroughly and rinse – Check the final rinse water for hardness level – Treat water if necessary</p>
<p>GLASS SHOWS GRAY OR WHITE STREAKS</p>	<p>Blower tube have blockage in the slot(s)</p> <p>Brushes are worn in the area of the streaks</p> <p>Rinse water is dirty</p> <p>Rinse water is alkaline or hard</p> <p>Blower slots too far open or closed</p> <p>Rinse nozzles or holes are plugged</p>	<p>Run a piece of glass with the blower tube covers removed to observe any blockage</p> <p>Re-adjust the brushes to contact the glass in the worn area (see Maintenance)</p> <p>Drain the tank and clean – replenish</p> <p>Drain the tank and clean – Test the water hardness</p> <p>Open or close the slots to 0.032 to 0.045 inch width (consult factory)</p> <p>Visually inspect and clean with a cleanout brush and wire (for holes)</p>

SECTION 7

PROBLEM	CAUSE	POSSIBLE SOLUTION
<p>GLASS ISN'T DRYING OR SMALL WATER SPOTS ARE PRESENT</p>	<p>Blower tube (air knife) slot is plugged</p> <p>Blower filter plugged</p> <p>Blower tube slot out of adjustment</p> <p>Blower piping leaking or plugged</p> <p>Blower runs backwards</p> <p>Blower tubes are too far away from glass</p> <p>Misalignment (top to bottom) of blower tube sections</p> <p>Rinse water is too cold</p>	<p>Clean blower tube slot (see Maintenance)</p> <p>Replace or clean filter</p> <p>Open the slot to 0.032 to 0.045 inch width (consult factory) – Check the blower motor for over-amperage</p> <p>Correct by replacing the tube or unplugging – Piping must be straight and of correct length</p> <p>Reverse any two blower leads in the control panel</p> <p>Adjust to 1/8 to 1/4 inch from glass (top and bottom)</p> <p>Top and bottom blower tube slots should be adjacent to each other – The bottom tube should be closer to the infeed of the Washer so the top trailing edge is blown off last</p> <p>Use a mix of heated water and cold water is available (110°F is ideal)</p>
<p>GLASS SHOWS ROLL MARKS</p>	<p>Dirty work area</p>	<p>Clean rolls with hot, soapy water and rinse thoroughly</p> <p>Continuous running may eliminate this problem, as all of the rolls may collect some lint, rubber or plasticizer overnight – Keeping the washer exit area covered when not in use will help keep it clean</p> <p>Drying area of the Washer has too much airborne particles – Clean the work area</p> <p>Daily startup using insulated glass may require flipping the pieces over and running through a second time as the topside will be cleaner than the side contacting the rolls – after one to two hours this may not be necessary, however, it may be desirable for a consistently higher quality yield</p>

SECTION 7

TEMPERATURE CONTROLLER

Tuning the FUJI Temperature Controller

The **SEL** (Select) key on the temperature controller selects the modes and parameter blocks for the unit. The **Up/Down** arrow keys navigate to the different parameters. To change the value, push the **SEL** key again and use the **Up/Down** arrow keys.

- 🔊 Turn on the Washer main power.
- 🔊 Hold down the **SEL** (Select) key on the **FUJI** temperature controller until the display shows “**P**”.
- 🔊 Scroll with the **Up/Down** arrow keys until the “**P-n2**” parameter is shown in the display.
- 🔊 Push the **SEL** key to access the parameter. Set the parameter to number “**3**” for the type K thermocouple with the **Up/Down** arrow keys.

NOTE

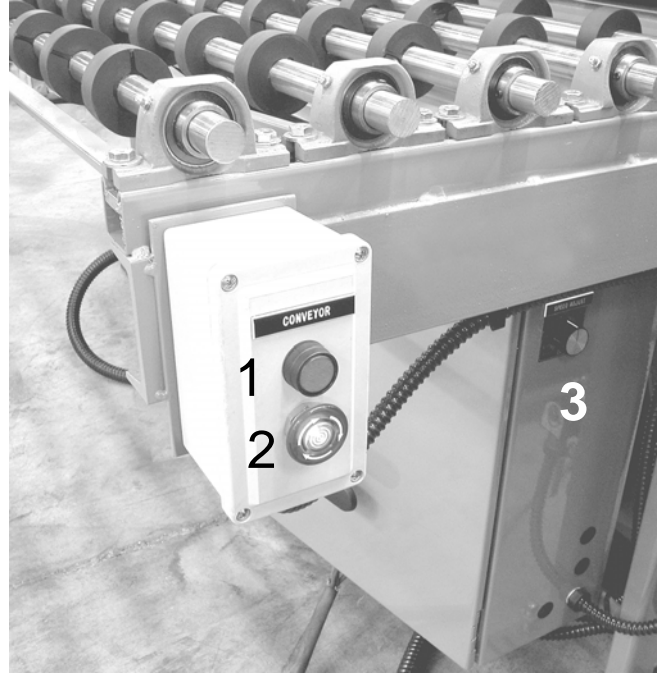
Once the SEL key is pushed, the controller will start to time out and return back to the initial temperature setting after a short period of time if no Up/Down arrow keys are pushed. In case the parameter was overshoot while using the Up/Down keys, the display will go back to the initial temperature setting by holding down the SEL key.

- 🔊 Push the **SEL** key until the **SV LED** (Set Value; the target temperature of the tank) is lit; then set the Washer temperature to 130°F.
- 🔊 Turn on the **Detergent Heater**. The **C1 LED** turns on when the controller is heating.
- 🔊 Turn on the **Spray Check** to circulate the detergent tank water.
- 🔊 Heat the detergent tank until the temperature reaches 130°F.
- 🔊 Hold down the **SEL** key until the display shows **StbY**. Scroll down to the **At** (Auto-Tune) parameter and set the value to “**1**”. The LED in the lower right corner will start to blink, signifying the start of Auto-Tuning. The LED will stop blinking when the Auto-Tuning cycle is complete. The Auto-Tuning cycle can be aborted by setting the parameter value to “**0**” and restarting again.
- 🔊 When the Auto-Tune cycle is complete, hold down the **SEL** key until “**P**” is shown in the display. Scroll down to the **CRtL** parameter and set the value to “**FUZY**”.

The temperature controller is now programmed.

SECTION 8

PART LOCATIONS



CONTROLS

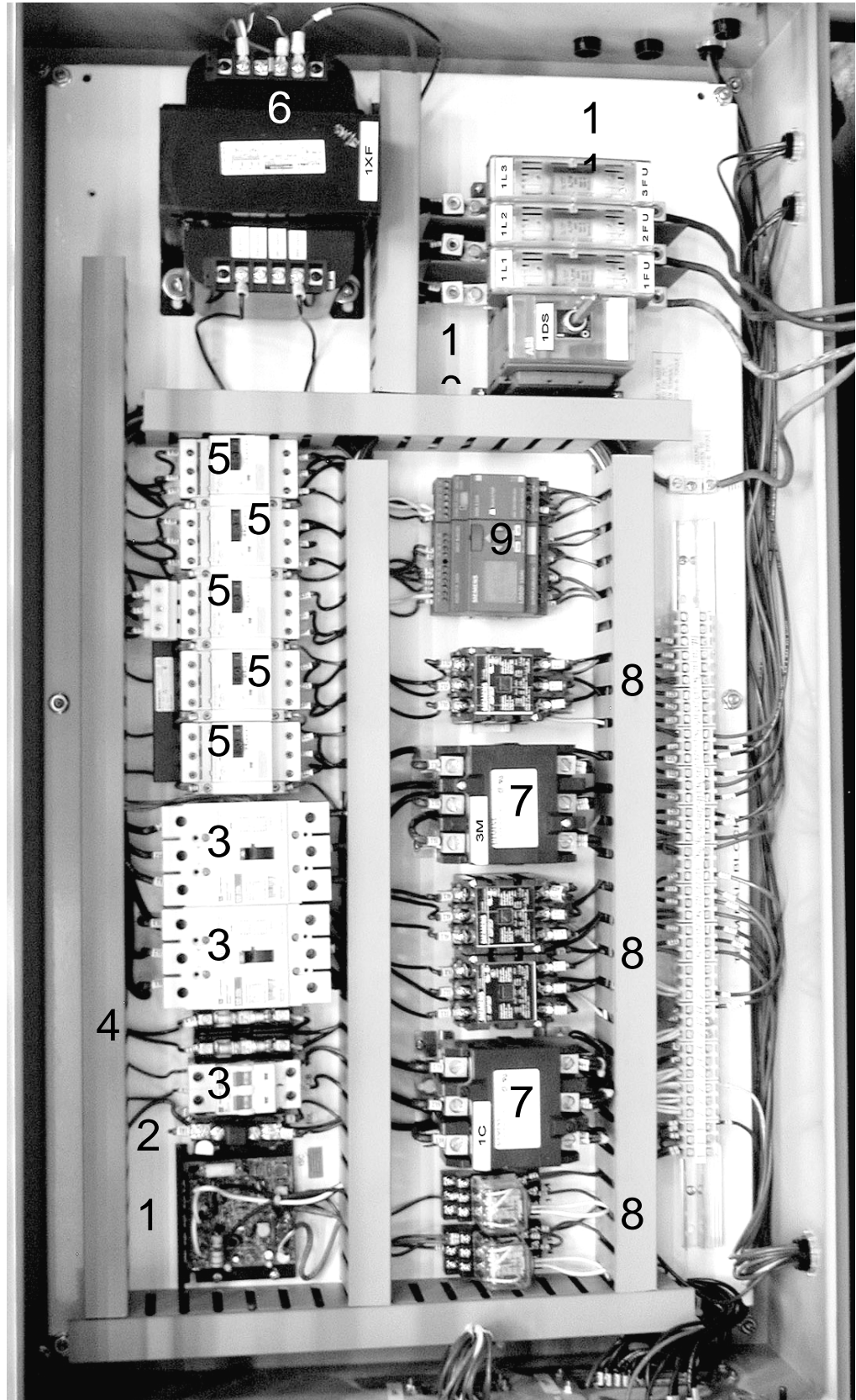
- 1 **PUSHBUTTON**
- 2 **EMERGENCY STOP**
- 3 **POTENTIOMENTER**
- 4 **AUDIBLE ALARM**
- 5 **DIGITAL READOUT**
- 6 **UNLOAD CONSOLE**
- 7 **LOAD CONSOLE**
- 8 **DETERGENT TANK**
- 9 **BLOWER**



SECTION 8

PANEL

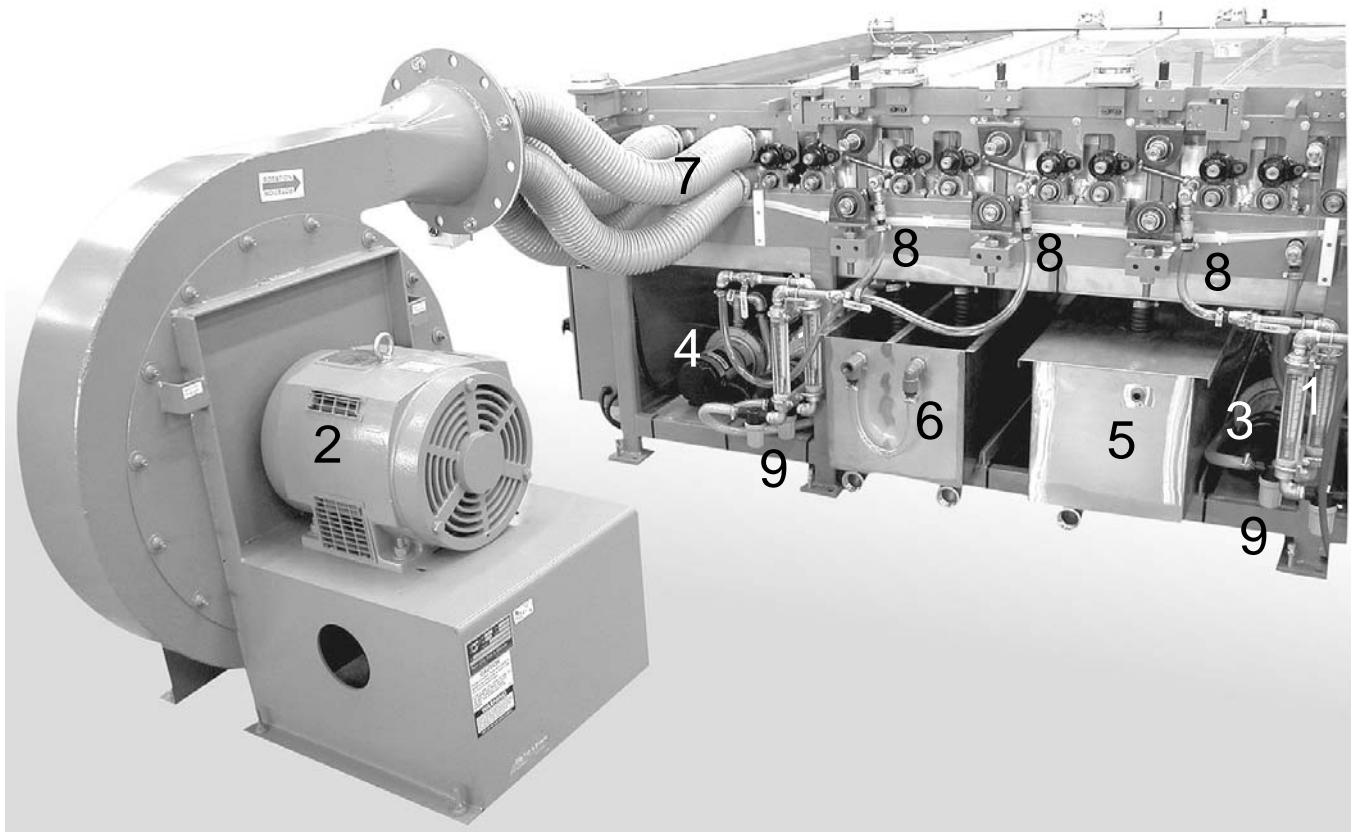
- 1 CONVEYOR DRIVE
- 2 CONVEYOR OVERLOAD
- 3 CIRCUIT BREAKER
- 4 FUSES
- 5 MOTOR PROTECTION
- 6 TRANSFORMER
- 7 CONTACTOR
- 8 RELAY
- 9 LOGIC CONTROLLER
- 10 MAIN DISCONNECT
- 11 MAIN FUSES



SECTION 8

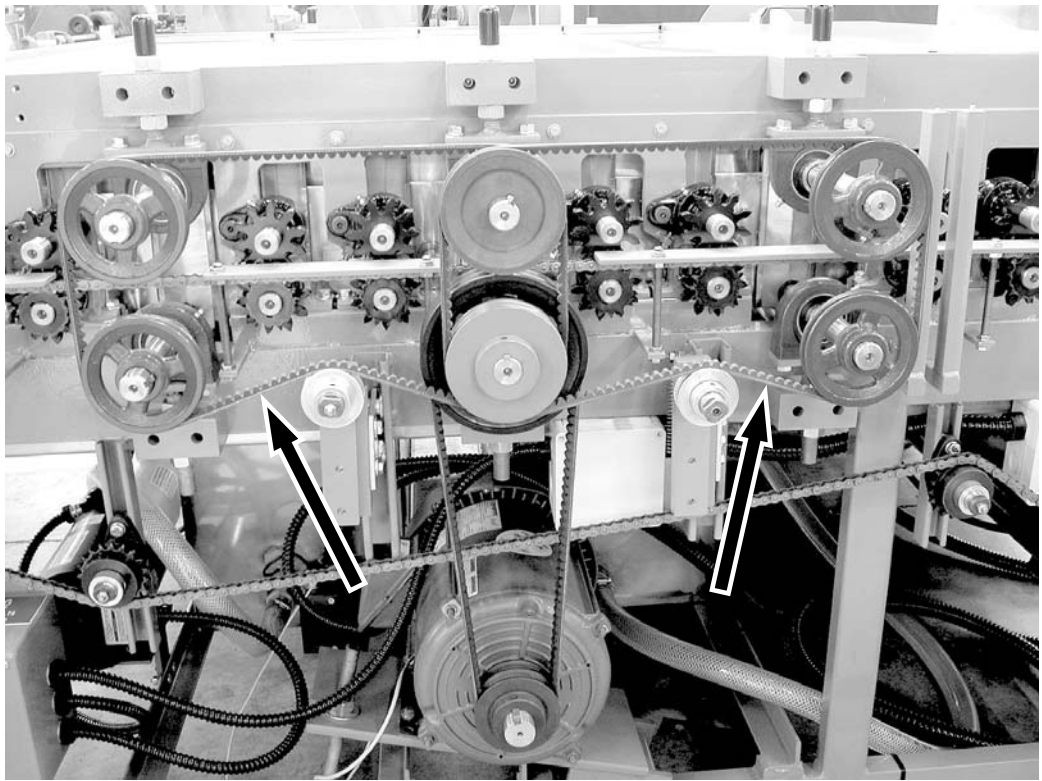
CLEANING & DRYING

- 1 FLOWMETERS
- 2 BLOWER
- 3 PUMP, DETERGENT
- 4 PUMP, RINSE
- 5 TANK, DETERGENT
- 6 TANK, RINSE
- 7 AIR DUCTS
- 8 HOSES, SPRAYPIPE
- 9 FILTER, INLINE



SECTION 8

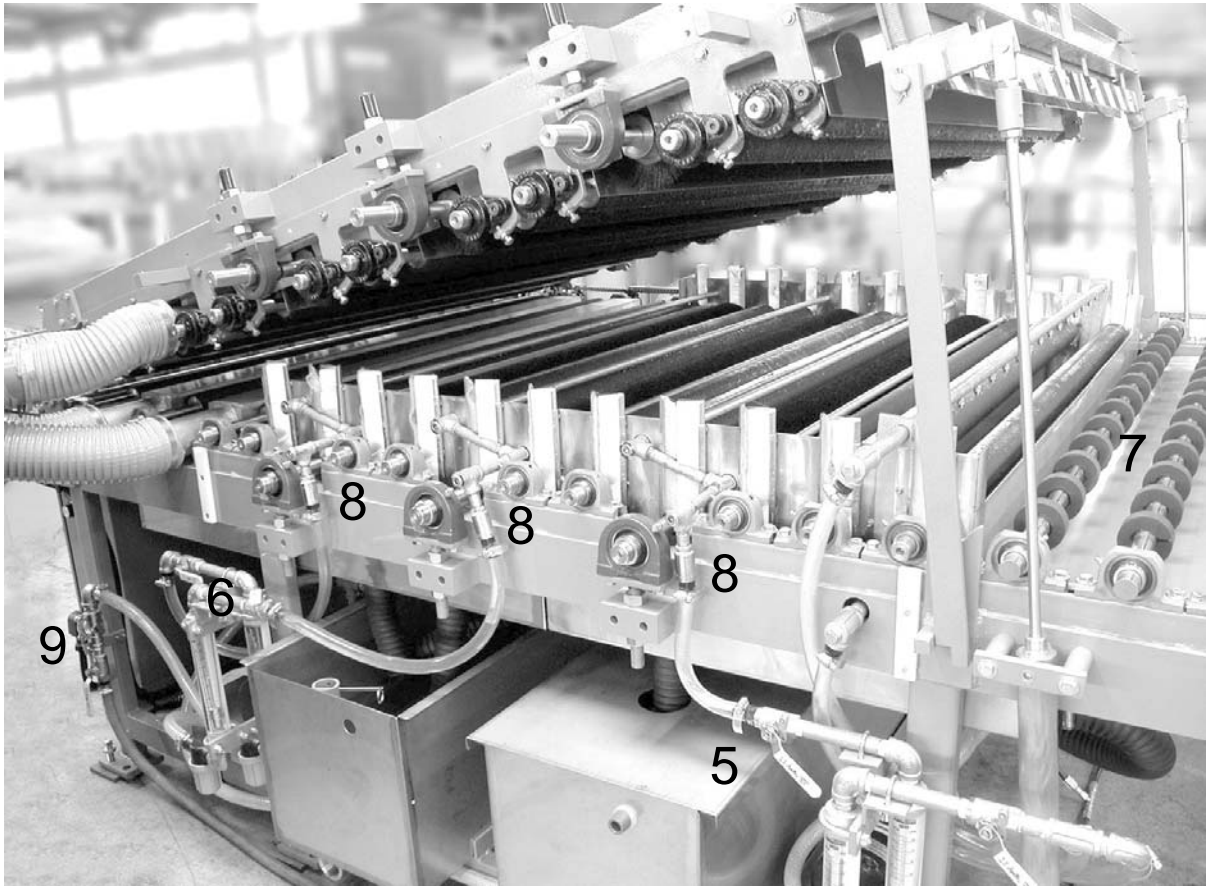
**BELTS BEFORE
RAISING UPPER
SECTION**



**BELTS REMOVED
TO RAISE UPPER
SECTION**

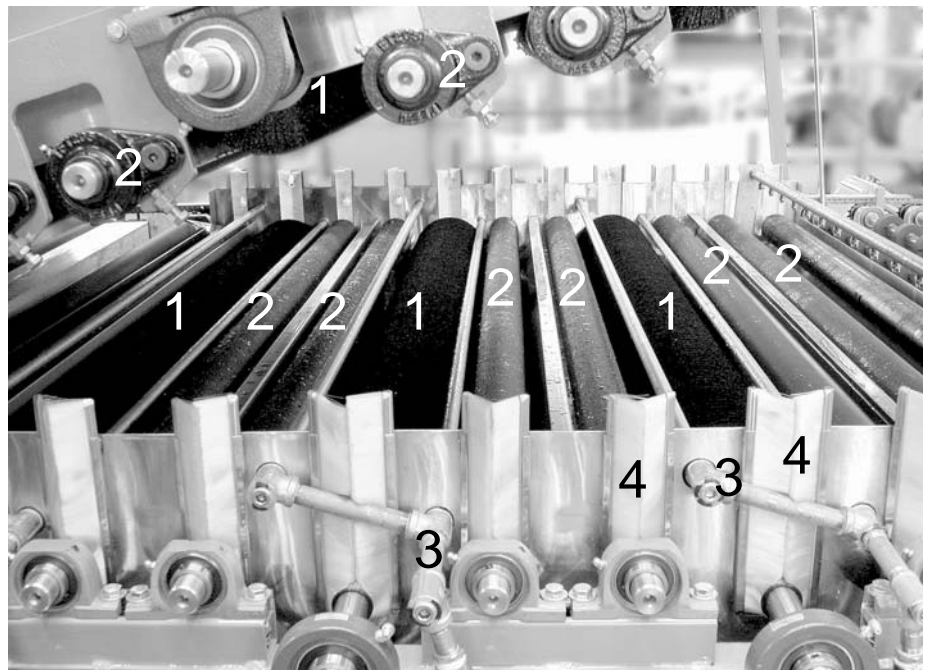


SECTION 8



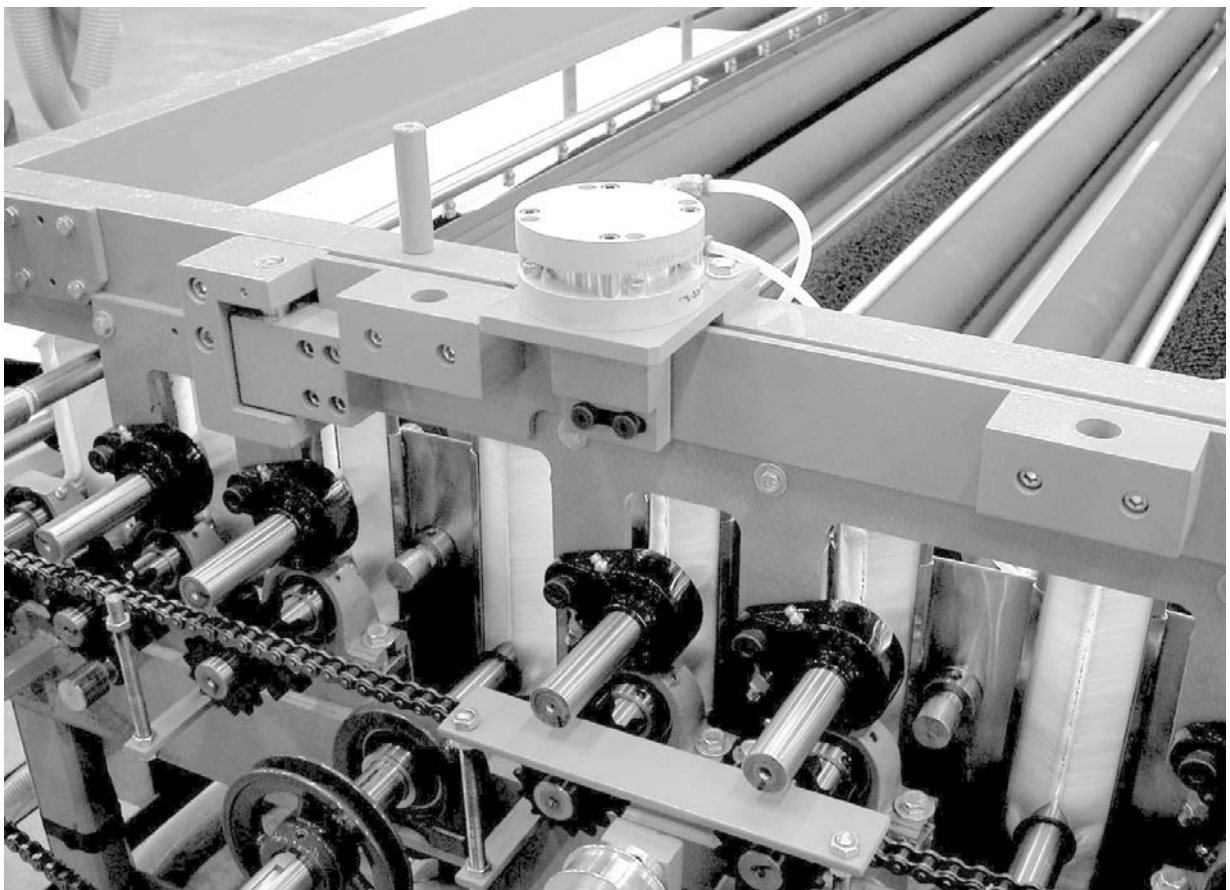
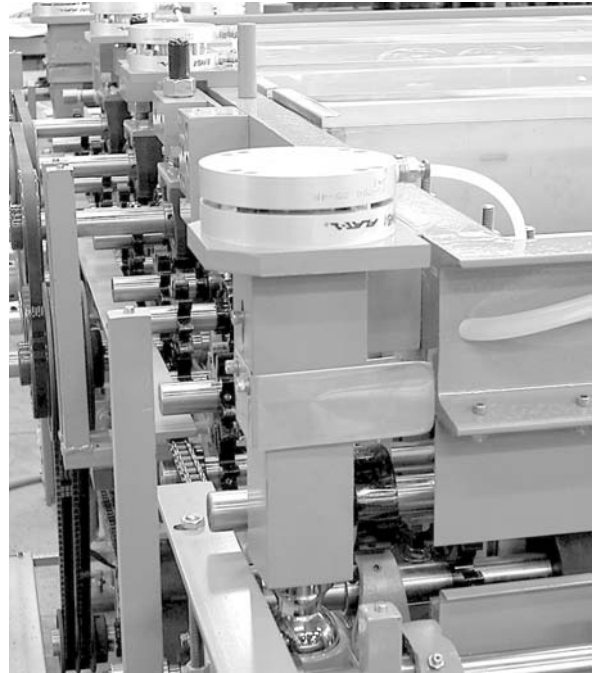
BRUSH SECTION

- 1 BRUSH
- 2 ROLLER, SOLID
- 3 SPRAYPIPE
- 4 STRIP BRUSH
- 5 VALVE, DETERGENT
- 6 VALVE, RINSE
- 7 ROLLER, RING
- 8 HOSES, SPRAYPIPE
- 9 SOLENOID, RINSE



SECTION 8

**RAPID
THICKNESS
ADJUSTMENT**

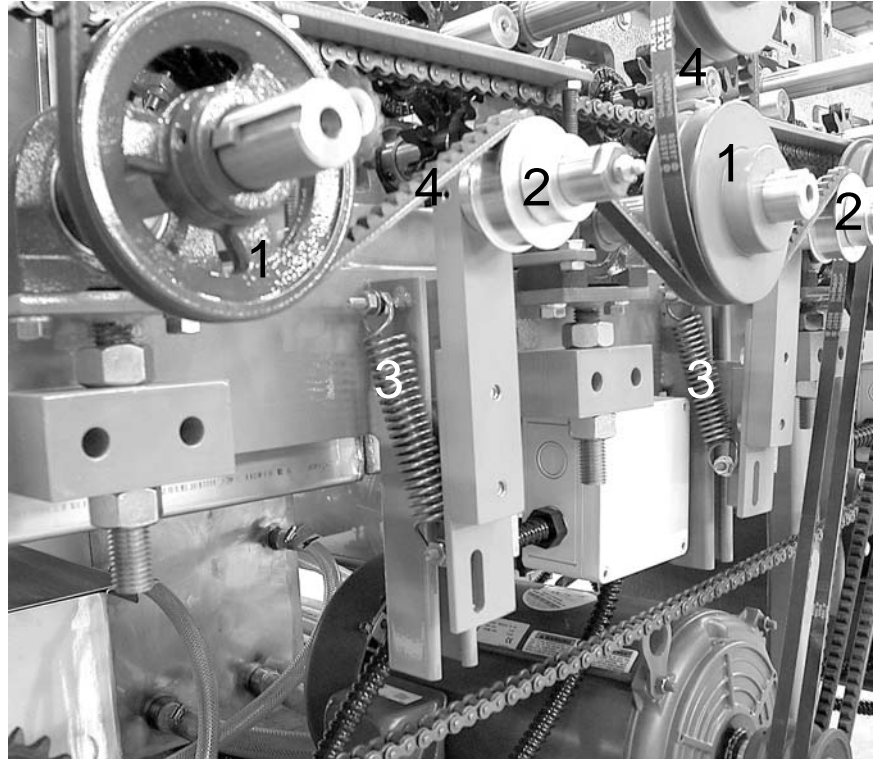


QUICK BRUSH ADJUSTMENT

SECTION 8

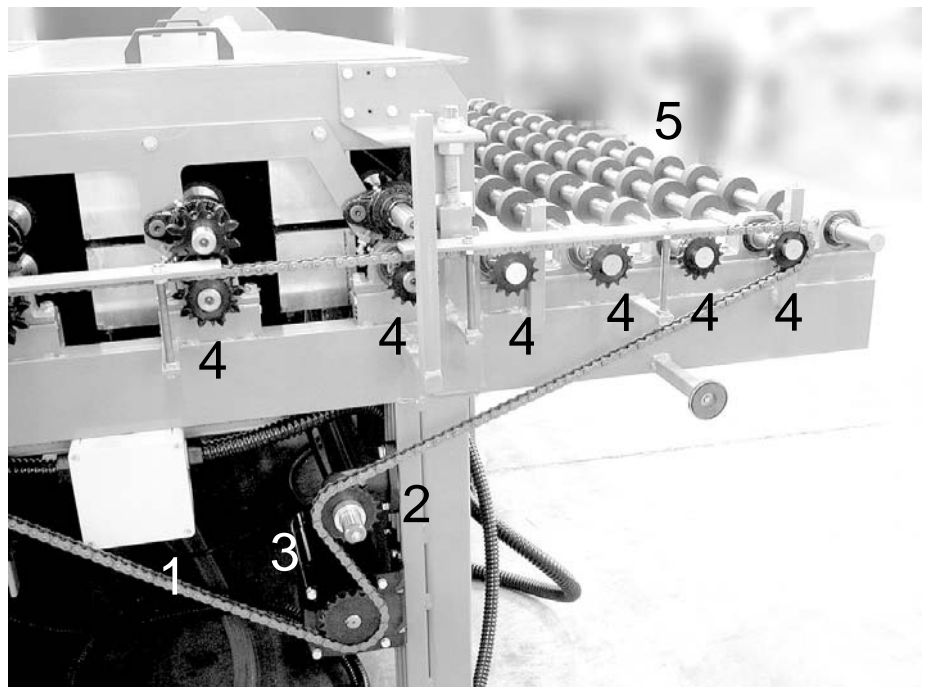
BRUSH BELT

- 1 PULLEY, BRUSH
- 2 IDLER, TAKE-UP
- 3 SPRING, TAKE-UP
- 4 BELT, BRUSH

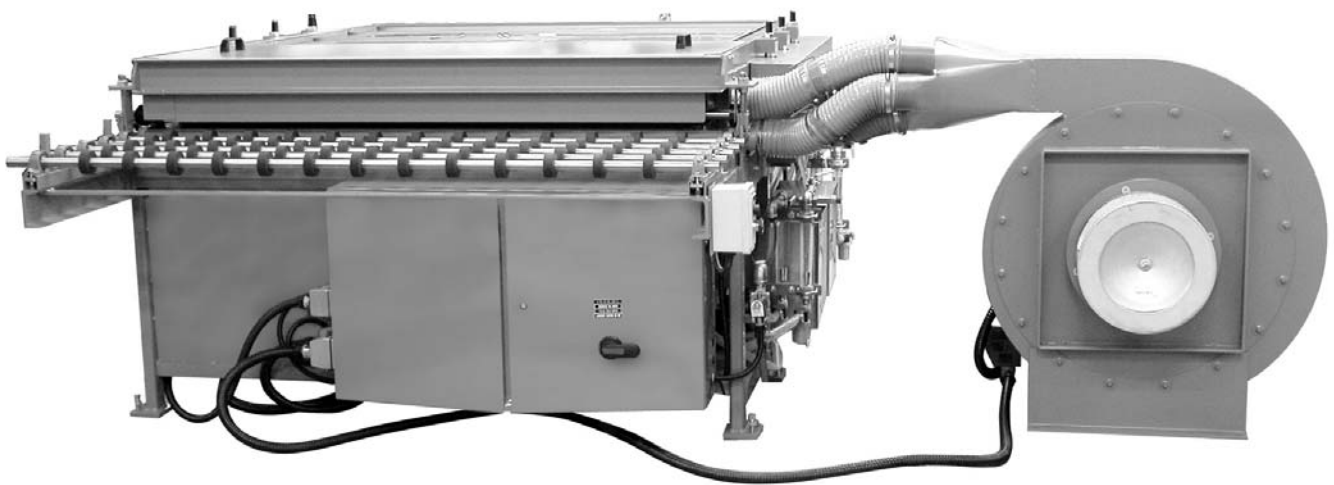
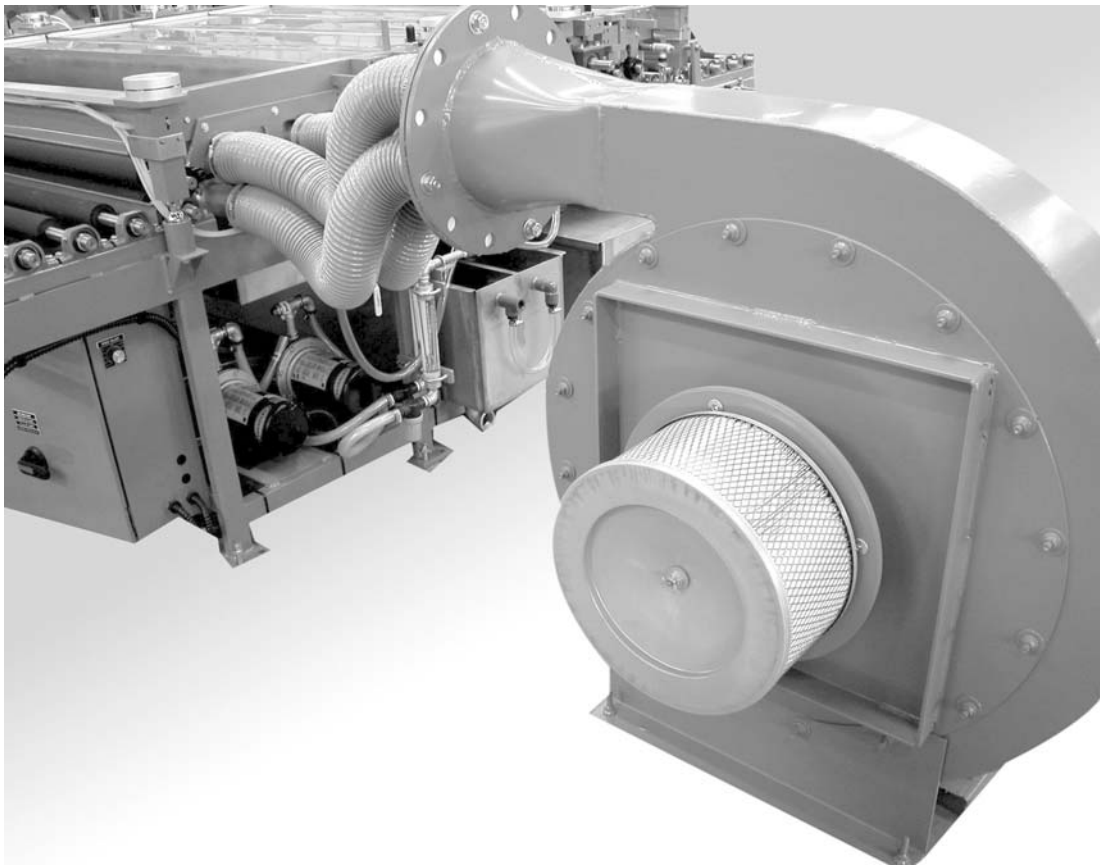


CONVEYOR CHAIN

- 1 CHAIN
- 2 TAKE-UP, CHAIN
- 3 MOTOR, CONVEYOR
- 4 SPROCKET
- 5 ROLLER, RING



SECTION 8



DISCHARGE END VIEWS

SECTION 8

GUARD REMOVAL



1 - PUSH THE LOWER HANDLE SECTION IN



2 - FLIP THE SECTION TO EXPOSE THE LOOP



3 - GRASP THE LOOP WITH WHOLE HAND



4 - REPEAT FOR OTHER HANDLE; LIFT GUARD

CAUTION!

It is necessary to lift the guard off of the pins that are retaining the upper guard section. After removal, flip the handles back to the closed position. Care must be taken not to damage the guard by placing objects on it or by causing any deformation of the guard by negligent handling. This will only prevent the proper alignment of the guard on the frame that may result in personal injury.

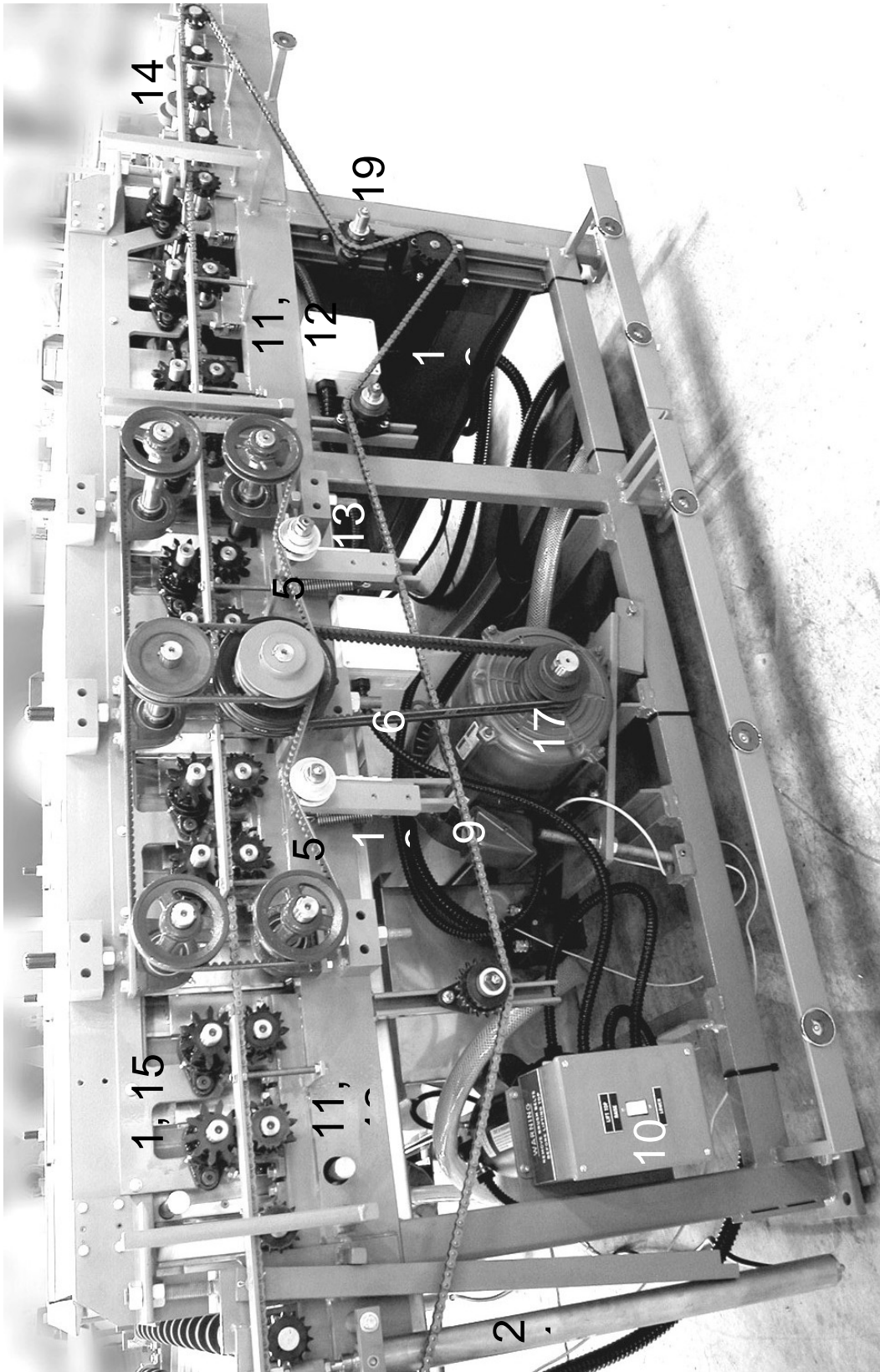
SECTION 8

GENERAL PART LIST

ITEM NUMBER	DESCRIPTION
1	BEARING, PINCH, RIGHT
2	BEARING, PINCH, LEFT
3	PILLOW BLOCK, ROLLER
4	PILLOW BLOCK, BRUSH
5	BELT, BRUSH
6	BELT, MOTOR
7	BRUSH
8	PIPE, SPRAY
9	CHAIN
10	CONTROL BOX, POWER LIFT
11	GEAR, PINCH
12	O-RING
13	SPRING, BELT TENSIONER
14	SPROCKET
15	ROLLER, SOLID
16	ROLLER, RING
17	MOTOR, BRUSH DRIVE
18	MOTOR, CONVEYOR DRIVE
19	TENSIONER, CHAIN
20	INLET, WATER
21	CYLINDER, HYDRAULIC

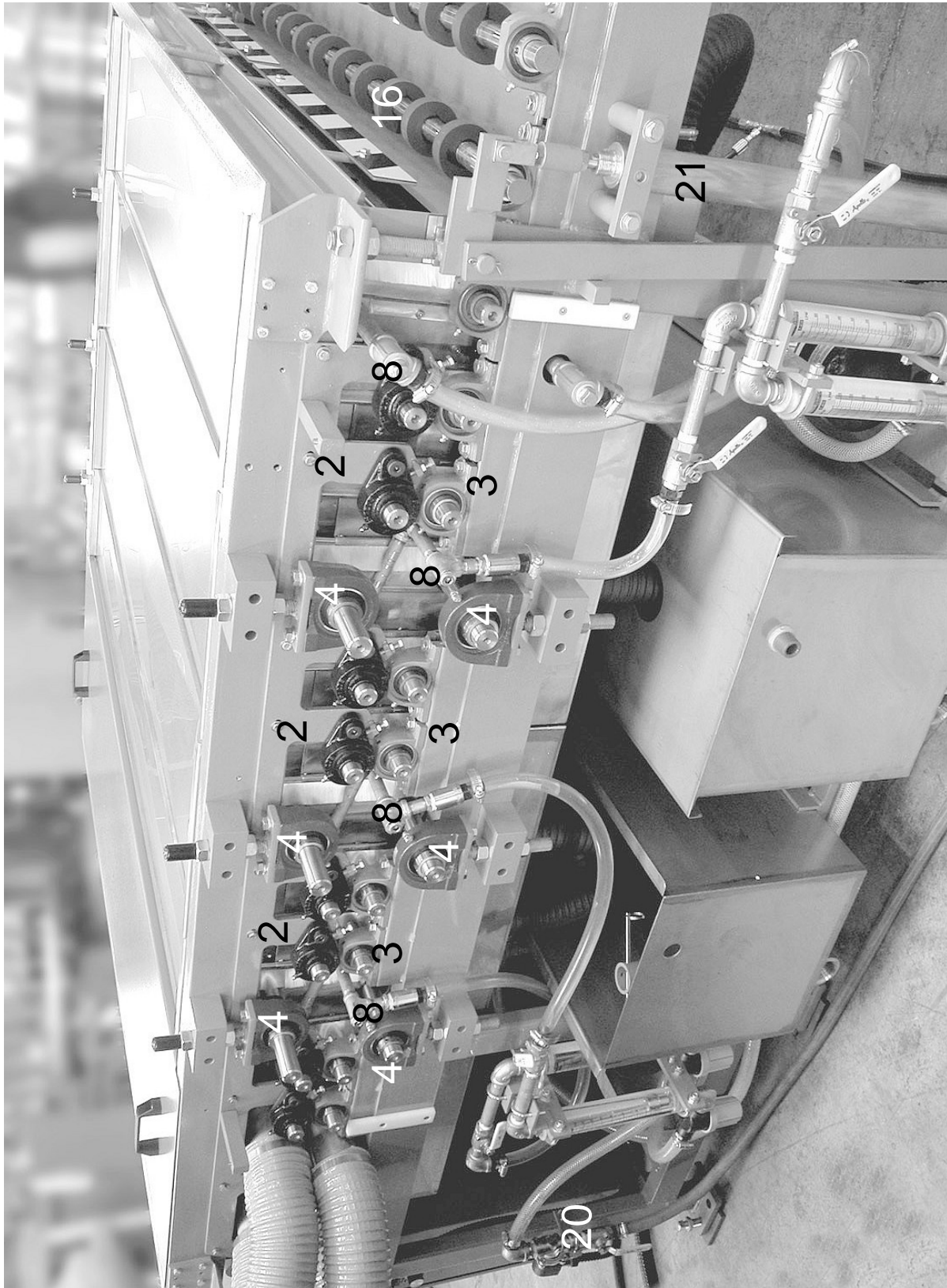
SECTION 8

RIGHT SIDE VIEW



SECTION 8

LEFT SIDE VIEW



WARRANTY STATEMENT

SOMMER & MACA Industries, Inc. (Seller) warrants the products of its manufacture to be free from defects in materials and workmanship in normal use for six months from the date of shipment unless a shorter period is provided elsewhere in this document. The Seller's obligation and Buyer's exclusive remedy shall be limited to the repair or replacement, at the Seller's option, of defective parts within the warranty period, provided the Buyer gives the Seller immediate written notice of such alleged defects, and if requested by the Seller, returns the defective parts to the Seller's factory for the Seller' inspection.

The warranties contained herein are in lieu of any other warranty, expressed or implied, including any warranty of MERCHANTABILITY OR FITNESS FOR PURPOSE.

In the case of equipment furnished by the Seller but not of the Seller's manufacturer, the Seller's liability to the Buyer hereunder is limited to such adjustment as the manufacturer thereof makes to the Seller. The Seller shall, in no event, be liable for consequential damages.

Warranties hereunder shall not apply to any equipment that shall have been damaged by misuse, neglect, failure to perform maintenance, or accident after the shipment thereof by the Seller. In addition thereto, this warranty shall be null and void if the (1) machine is used in a manner contrary to instruction or after malfunction is noticed, (2) the Buyer does not honor the terms of payment, or (3) the machine is modified or altered without the agreement of the Seller.