ALBANY INTERNATIONAL
ENGINEERED SYSTEMS DIVISION

INSTALLATION/TROUBLESHOOTING INSTRUCTIONS

PTS-90 SINGLE JET TRAVERSING SHOWER SYSTEM

Customer Arrangement Drawing D-_____
Wiring Diagram: C-16295
Traversing Head Cart Assembly: D-17016/D-17323
Operating Instructions: Form #397
I/O Box Arrangement: C-15926
Sola Power Conditioner Assembly: D-17110 (C16576 Schematic)
Nozzle Installation Drawing: B-17916

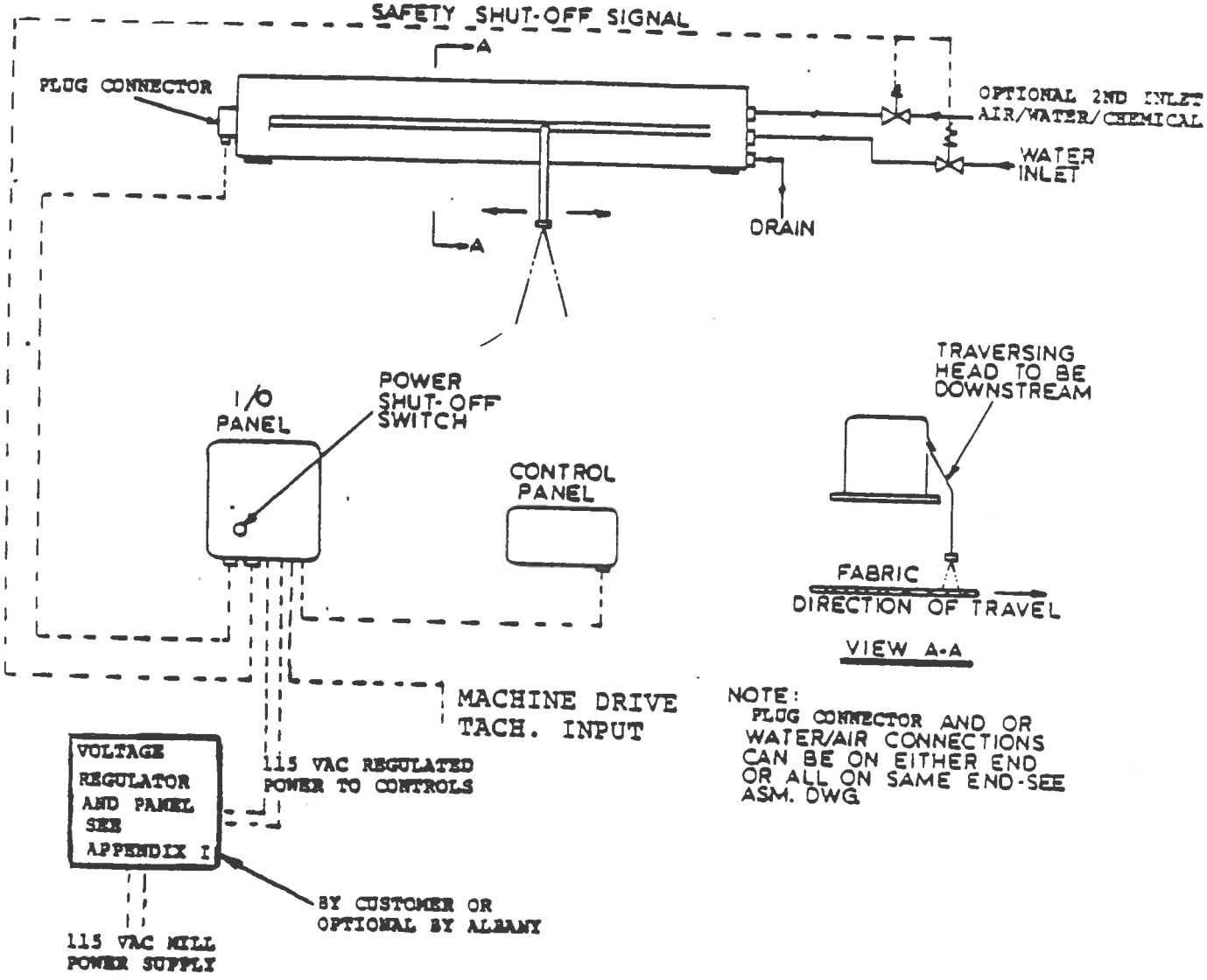


FIGURE I: SYSTEM LAYOUT

INSTALLATION INSTRUCTIONS

A. Traversing Unit

1. See customer arrangement drawing for mounting dimensions.

2. Ensure selected mounting area ambient temperature does not exceed 180° F.

3. Remove any protective packing and shipping restraints from unit.

4. Move unit into position -- SLING ONLY USING MOUNTING PAD AREAS AT EACH END. (Note: Unit center of gravity is close to the top side -- "top heavy").

5. See Figure I for typical system layout. (Note traversing head location with respect to fabric run).

6. When unit is securely mounted -- install nozzle piping per arrangement drawing and per installation drawing B-17916 and check fabric clearance.
Note: Ensure locking wire is installed per instructions.

7. Manually "traverse" cart and shower head assembly full travel front and back by pushing on nozzle piping, checking for interference with framing, and walkways, etc. The extreme travel locations will be front and back "park" positions and will be used for nozzle servicing. Access should be convenient at either or both of these positions.

8. After completion of the mechanical check, the drain connection should be made at the 3/4" NPT nipple indicated on the arrangement drawing. This feature will ensure that no water is trapped inside the unit, in the event of an internal piping leak.

   Rigid or flexible piping (supplied by customer) may be used, or leave the connection unrestricted. If piping is used, it should be down run only to a convenient point on the machine framing lower than the unit, and left open for visual inspection.

9. Refer to Figure I -- Connect #1 water supply and optional 2nd supply, if applicable -- using control valves supplied by customer. Ensure that both supplies are adequately filtered to prevent nozzle plugging.

   Nozzle Flow Requirements:

Water :	.040" Jet or 15° Fan	100 psi	-- 0.36 gpm
		120 psi	-- 0.39 gpm
		160 psi	-- 0.45 gpm
		200 psi	-- 0.50 gpm
		300 psi	-- 0.59 gpm
Air :	.090"	9-12 cfm @ 60-100 psi	

10. Use a liquid tight connection and conduiting between plug connector and I/O box. (See drawing C-16295 for wiring diagram and paragraph B5 for customer supplied wire sizing).

B. Control Panel/I/O Box

1. The control panel should be located such that the operator can see the shower unit and the fabric run. Do not mount on paper machine framing. (Avoid high vibration areas as this will reduce reliability of the control panels). The maximum allowable distance between the control panel and the I/O box is 100 feet. (A specific connection cable length is supplied as specified by customer).

2. The I/O box should be located conveniently for operator access. This panel contains the only system power shut-off switch.

   The maximum allowable distance from the I/O box to the unit junction box is 100 feet. See paragraph B5 for wire specifications for customer-supplied connecting wire.

3. Ensure that an adequate regulated power supply is available (see Appendix I).

4. Check the areas selected for panel location to ensure that the ambient temperature does not exceed 120° F.

5. Drill I/O box for conduit connection. Use a liquid-tight connector and conduit between I/O box and the unit plug connector (see drawing C-16295 for wiring diagram). Maximum length of connecting wire is 100 feet. Use the following table for wire size selection.

Length of Run	Service	Number of Wires	Wire Size
Up to 50 ft.	Motor	5 Conductors	#14 AWG. - Stranded
50 ft. to 100 ft.	Motor	5 Conductors	#12 AWG. - Stranded
All	Sensors	3 T.P. Shielded Cable	Min. #24 AWG. (e.g., Alpha 5610/2401)

6. Install safety shut-off circuit(s) -- see wiring diagram and Figure I. Note: solid state relays are used for three circuits, rated at 3 amps at 120 VAC.

7. If Auto Speed function is required (see Form 397, Page 3) connect a tachometer signal (4-20 mA) to the terminals as indicated on the wiring interconnect diagram - Drawing C-16295.

8. Drill I/O box for regulated 115v AC power supply. Ensure that there is a conveniently located power "lock-out" switch for maintenance purposes. See also Appendix I for power conditioning specs.

C. Troubleshooting Guide

1. No lights or motion.
Reference Drawing C-15926.

a. Check the AC power into the I/O box.
b. Check the power fuse.
c. Check the AC connections to the I/O box and the connection from the I/O box to the controller.
d. Check the five volt supply.

2. Error 2 and no motion.
Reference Drawings C-15926 and C-16295.

a. Check the 24V supply.
b. Check the I/O box connections to motor and translator module.
c. Check the connection between I/O box and controller.
d. Check the shower connections from the I/O box.
e. Check the cart's freedom to move.
f. Check the cart connections (C-16295).
g. Check the motor connections, particularly the connectors (C-16295).

3. Error 2 and motion.

a. Check that the voltage across 6TB-19 and 6TB-35 pulses when the cart moves (C-16295).
b. If the voltage does not pulse, check the connections to the motion detector and the motion detector itself (C-16295).

4. Limit switch error (Error 1).

a. Check that the voltage across the switch terminals at the I/O board is above 20 VDC when the limit switch is unactivated. Front limit 6TB-17 and 33, back limit 6B-18 and 34 (C-16295).
b. If the voltage is too low, check for a reversed switch connection at the I/O board or between the I/O box and the shower (C-16295, C-15926).
c. Check for a bad switch by replacement.

5. Machine speed error (Error 3).

a. Check that the current at I/O board is between 4 mA and 20 mA and that the equivalent speed for that current is greater than 10% of the original set speed (C-15926).
b. Check that the polarity of the voltage across 6TB-21 and 6TB-22 is the proper polarity (C-16295).
c. Check that the voltage across 6TB-21 and 6TB-22 is equivalent to an input resistance of 250 Ohms (C-15926).
d. Check the controller connections to the I/O box (C-16295).
e. Check the control box by replacement.

PTS-90 POWER LINE CONDITIONING

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

Minicomputer Regulators

Provides voltage regulation and ultra-isolation for microprocessor-based equipment such as word processors, electronic cash registers and mini-computers, where noise and transients cause errors or voltage fluctuations and brownouts can cause memory loss. Sinusoidal output waveshape containing less than 3% harmonic distortion. Better than 90 dB transverse noise rejection and effective capacitance less than 0.1 μF. Input line variations of ±15% regulated to ±3% on the output. Output will remain within NEMA voltage specs at +5%-10% for input voltage as low as 58% of nominal. Full load efficiency 48%.

HARD-WIRED 60Hz SINGLE PHASE

Stock No.	Type	Voltage Rating Req. Output	Voltage Rating Input Range	VA	Wg.	Dimensions in. A	B	C	Approx. Ship Wt.
73W273	63-23-112-8	120	95-130X	125	2	7	3	3.31	14
73W274	63-23-125-8		175-235X	250	2	3.88	4	4.50	28
73W275	63-23-150-8		190-260X	500	2	15.1	8	7	46
73W277	63-23-[illegible]		280-520	750	2	19.4	8	7	56
73W278	63-23-210-8	120		1000	2	17	8	7	68
73W279	63-23-215-8			1500	3	19.09	8	10.56	105
90W027	63-23-220-8	240		2000	3	19	8	10.56	140

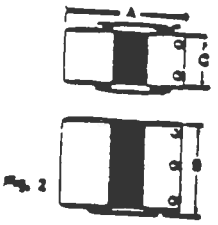


Fig. 2

SOLA MODEL 63-23-150-8 OR EQUIVALENT REGULATOR SHOULD BE PROVIDED BY CUSTOMER OR PURCHASED WITH THE PTS-90. REGULATOR TO BE MOUNTED IN HOFFMAN NO. A-24H20CLP ENCLOSURE WITH PANEL PLATE NO. A24P20 OR EQUIVALENT.

APPENDIX II

RECOMMENDED SPARE PARTS FOR PTS-90 SHOWER

B-17091	PTS-90 Motor Assembly
A-18151	Limit Sensor Assembly - Male Plug
A-18150	Limit Sensor Assembly - Female Plug
B-17079	Rotation Sensor Assembly
A-17772	Stepper Board
C-16522	Wheel Assembly
A-17160	1/8A Pico Fuse
A-17161	5A Pico Fuse
A-17773	Relay Board
A-17586	63 Pin Feed Through Connector
123HSGP5	Needle Jet Nozzle
A-17368	Sola Voltage Regulator 60 Hz., 110 volt
A-17776	I/O Board
A-18424	Relay
A-16530	Control Panel

PTS-90 SINGLE JET SHOWER
(ENGLISH/METRIC)
(VERSION 3.0)

OPERATING INSTRUCTIONS

SEE FIGURE 1 FOR INSTALLATION SCHEMATIC

SEE FIGURE 2 FOR CONTROL PANEL LAYOUT

The control panel is designed to display "front" and "back" limit settings for the single traversing nozzle. These "limits" indicate the location in "inches/centimeters" from a zero point on the front side. In "normal" cycle, the difference between the front and back limit settings would be equivalent to the fabric width being cleaned. In the "extra cover" or "spot clean" cycles, the limits displayed are the selected cleaning areas for each of these functions. Maximum fabric width accommodated is 400 inches (English) or 1034 centimeters (metric).

POWER

The system is energized by activating the "Power On" switch located on the power panel (See Figure 1). This is the only power switch in the system.

At all times, the exact operating modes are displayed on the left hand control area of the panel. This area indicates the following modes:

Normal	
Extra	(Extra Coverage)
Spot	(Spot Clean)

The mode in operation is illuminated.

The direction of nozzle travel mode is also displayed as:

To Front

To Back

Again, the mode in operation is illuminated.

The nozzle traversing speed is also continuously displayed, and indicates inches/centimeters per minute.

All FUNCTION buttons are self prompting, in that, an illiminated red LED in the top right hand corner of each button area, will indicate activation of each function. A FLASHING RED "LED" ON A BUTTON AREA WILL REQUIRE AN OPERATOR RESPONSE AS FOLLOWS:

a. Press button to acknowledge request from panel for instructions.

b. Position/Entry display will indicate the particular function setting presently stored in the control memory.

c. Using the Numerical Pad on the right hand area of the control panel, enter new instructions if required. These numbers are activated using the ENTER key.

d. If NO change in setting is required, simply press ENTER key

NOTE: While in this mode, if an entry error is made, use CLEAR button to erase Position/Entry dislay and start entry over again.

If an erroneous parameter has been entered, the complete programming cycle may be aborted without altering any operating parameters. While at least one prompting LED is flashing, press any of the cycle buttons at the extreme left of the panel. The programming sequence in progress will be ended without altering operation.

NORMAL CYCLE

This will be the normal operating mode and will require initial setting of the FRONT and BACK limits to correspond to the front and back edges of the fabric area being cleaned. (See Figure III for set up diagram) -- See Instructions Above.

The "previous limits" function button is used only after initial programming has established the working limits for this cycle. The initial selection of "Normal Cycle" will demand, through flashing LED's, a choice between NEW or PREV. (previous) limits. The selection of "Prev. Limits" will re-enter all previous values for this cycle and reinitiate cycle start.

EXTRA COVERAGE

This function is used to give "extra" cleaning in a selected area within the normal operating front and back limits, and requires defining the area to receive this extra coverage as well as defining the number of extra "passes" required within this defined area, during each normal cycle.

See Figure 4 for trace pattern diagram for this mode.

Initiate this function by pressing "Extra Cover" and follow programming sequence as previously explained. (See Figure 3 for "limit" illustration).

During programming of this cycle, the operator will be prompted for the number of "EXTRA COVERAGE" cycles required during each complete traverse. Acknowledge EXTRA COVER and enter number of cycles required. Pushing the ENTER button will activate this

extra coverage program, which will go into effect after the unit has completed a full traverse to the BACK in normal cycle.

To terminate this mode, push END EXTRA COVER button and unit will return to normal cycle mode.

SPOT CLEAN

The operation of this mode is identical to EXTRA COVERAGE except the spot clean limits selected will define the area which will receive continuous spot cleaning until this function is terminated by pressing the END SPOT CLEAN button. Use of this button will return the unit to the previously energized cycle.

REVERSE DIRECTION

Pressing the REV. DIR button at any time during any mode will instantaneously reverse the nozzle travel direction and will be indicated by a change in illumination of "Direction of Travel" display.

PARK FRONT

Pressing this button will cause the spray nozzle to RAPID TRAVERSE to the zero (0) position on the front side and park.

To restart unit select and initiate any cycle.

PARK REAR

Same as above except nozzle will park at rear of machine.

SPEED INCREASE/DECREASE

Use of these buttons will cause a corresponding incremental increase or decrease in traversing speed and will be displayed in the POSITION/ENTRY display. (This display will indicate speed in inches/centimeters per minute to three digits. Final speed indication in the left hand speed display will be rounded to two digits with a maximum speed available of 99 inches/2.6 meters per minute).

AUTO SPEED

This function is designed to be tied to the machine drive, and provide an automatic traversing speed change directly related to machine speed change.

e.g. A 10% increase in machine speed will cause a 10% increase in nozzle traversing speed.

DIAGNOSTIC DISPLAYS

In the event of unit malfunction, a single digit will be seen in the left hand side of the POSITION/ENTRY display.

There are three codes as follows:

- [1] Limit switch error. In any mode except park, if the traversing head sees front or back park limit switches, indicates over-run of front or back limits.
- [2] Carriage not moving.
- [3] Machine speed interface - Open wire (low current).

In the event of any of the above displays, the unit will stop functioning and signal water shut-off. (See Figure I). The ACK. ALARM button will be activated with a flashing LED.

To restart system, press ACK ALARM button, then press RESET button. After pressing RESET, if the error condition has been cleared, the spray head will traverse to the front limit to ensure calibration and then will resume the interrupted cycle from the front limit. If unit continues to display a trouble code, shut off power at main power panel and initiate maintenance procedures.

POSITION/ENTRY SPEED DISPLAY

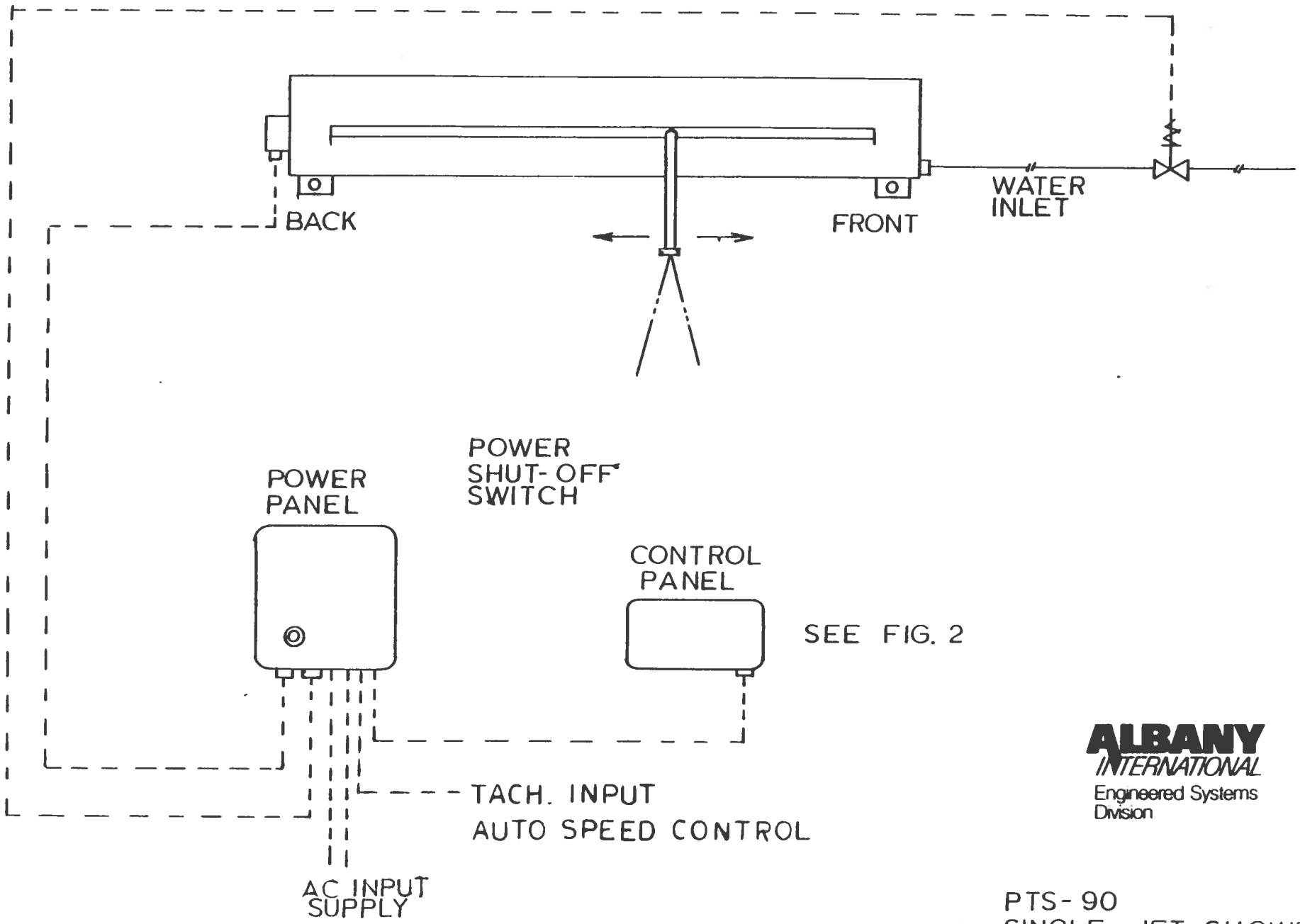
During any mode, pressing SPEED button will display to three digits, the traversing speed.

POWER

When lighted, indicates controls and units are powered.

APPLICATION RECOMMENDATIONS

See Appendix I and II.



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PTS-90
SINGLE JET SHOWER
INSTALLATION SCHEMATIC

FIG-1

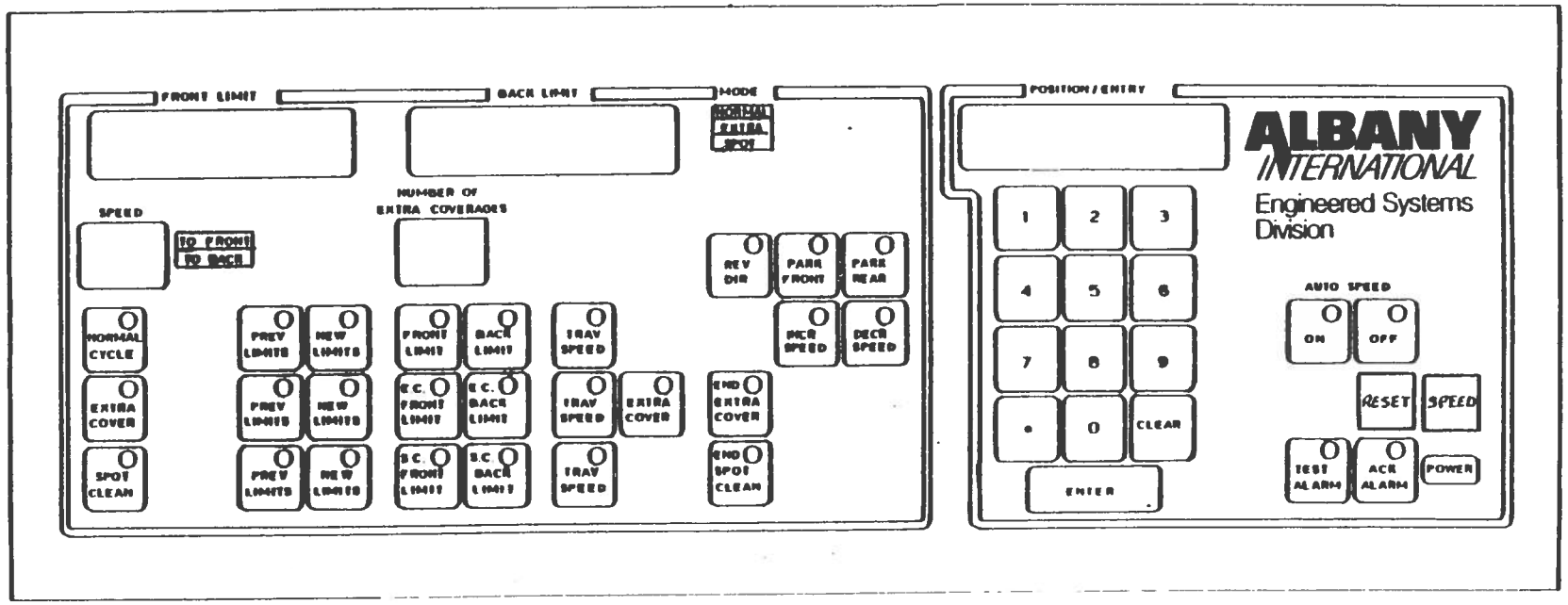

FIG. 2

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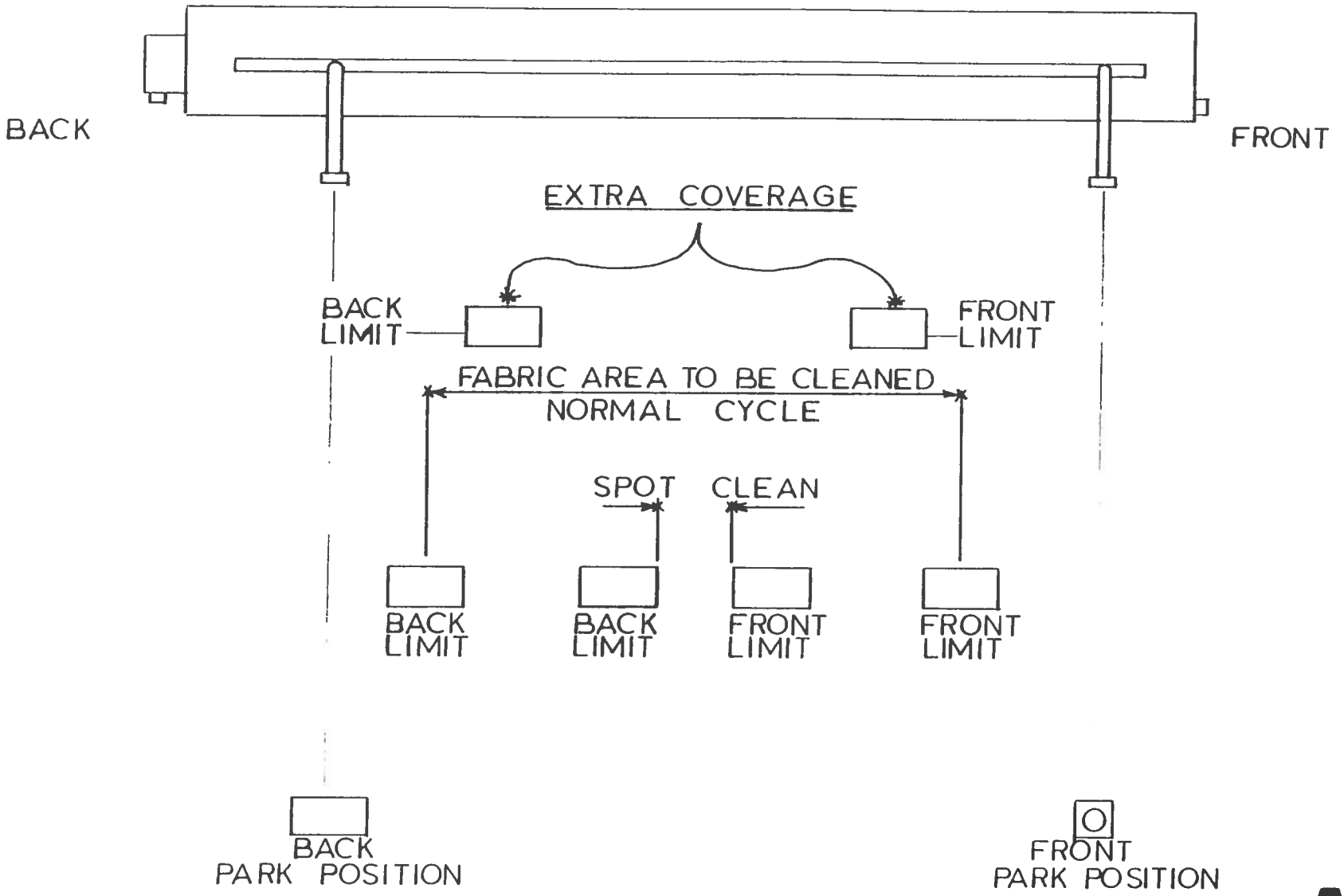

FIG - 3

PTS 90
SINGLE JET SHOWER

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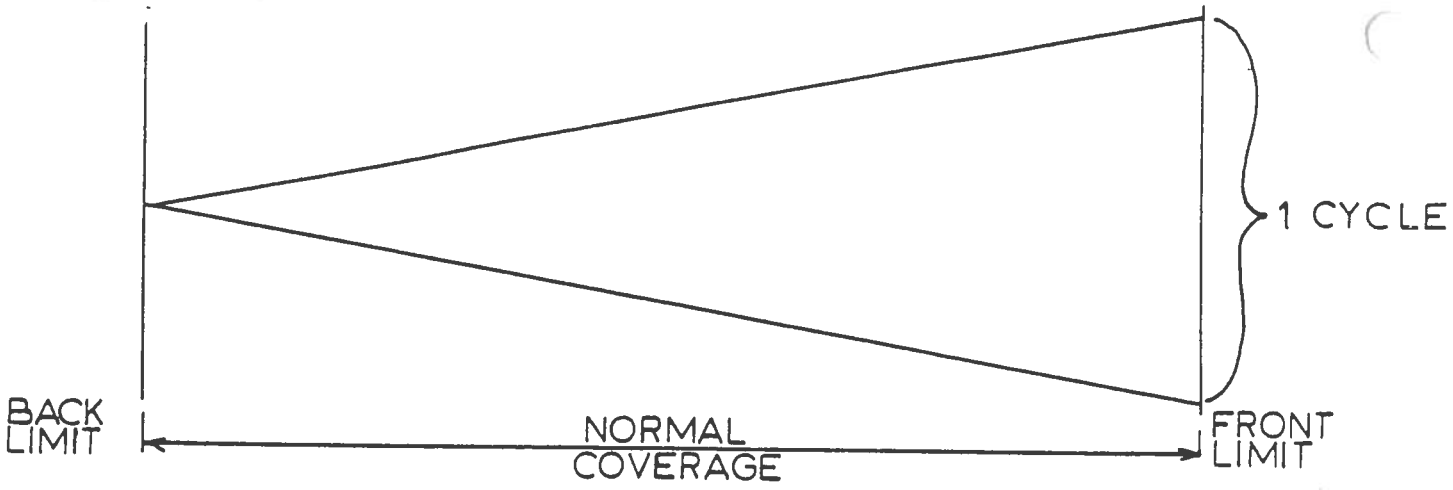
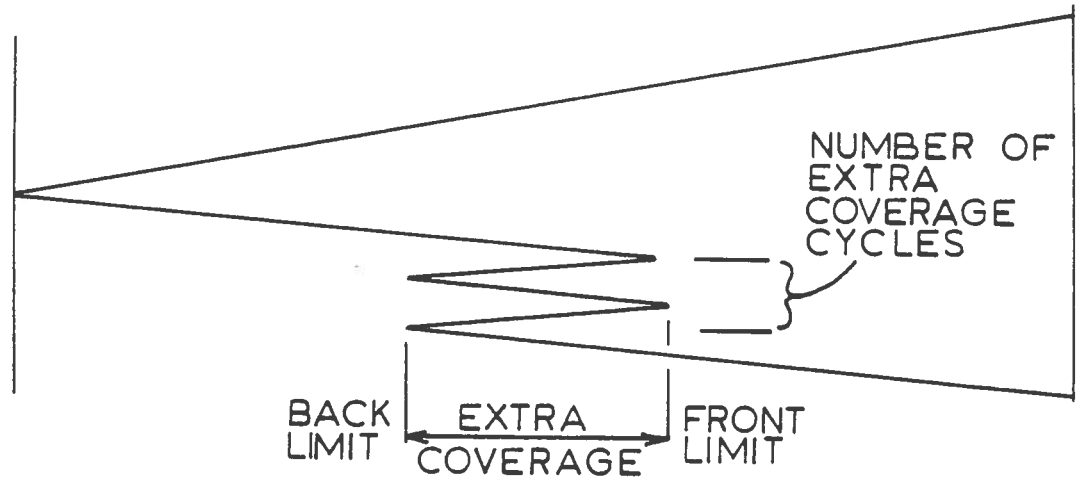
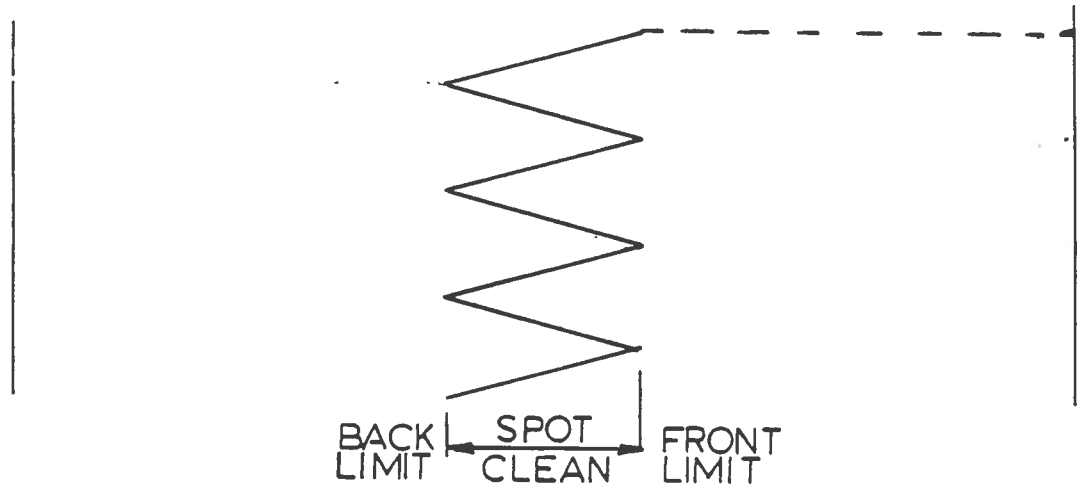
NORMAL CYCLE TRACE



EXTRA COVERAGE TRACE



SPOT CLEAN TRACE



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TRACES FOR TRAVERSING NOZZLE PROGRAM MODES.

FIG. 4

APPENDIX I

FABRIC/FELT CLEANING -- APPLICATION RECOMMENDATIONS

FOR LOW FREQUENCY SHOWER OSCILLATION

A. Shower the face or paper side of the fabric or felt.

B. Do not exceed 450 psi shower water pressure. At greater pressures, the clothing can be damaged. Adjust pressure for optimum cleaning up to this maximum -- Normal expected 250 to 350 psi.

C. Use a 0.040" diameter needle jet nozzle.

D. Locate the shower needle jet nozzle approximately 6 - 12" from the fabric or felt surface at point of contact.

E. Showering angle relationship to the felt or fabric should be effectively 90° as a starting point. (See Appendix II for angle/speed chart). Adjust in either direction for optimum cleaning.

F. Shower to be oscillated at a speed which will give significantly more (double or greater) than 100% coverage of the felt during its travel stroke, and to provide this coverage both on its outward and return travel.

Set up the nozzle traverse speed at the lowest expected machine production speed to provide significant overlap coverage. This ensures more than double coverage at all operating speeds. As a starting point, set up the shower nozzle traverse speed to travel at one nozzle orifice diameter per felt/fabric revolution. This will ensure double coverage or more, because the area of the jet (impact area) on the felt will always be greater than (more than twice at 8") the nozzle orifice diameter. Greater than 100% coverage will assure full coverage in the likely event that the felt does not track perfectly around its run.

LOW FREQUENCY SHOWER OSCILLATION

APPENDIX II

FELT/FABRIC CLEANING SHOWERS

SHOWERS SHOULD BE OSCILLATED AT A SPEED WHICH WILL GIVE SIGNIFICANTLY MORE (DOUBLE OR GREATER), THAN 100% COVERAGE OF THE FELT DURING NOZZLE TRAVEL, AND TO PROVIDE THIS COVERAGE BOTH IN THE OUTWARD AND RETURN DIRECTIONS, WITH MINIMUM DWELL AT "TURN-AROUND".

SINCE, AS ILLUSTRATED BELOW, THE HIGH PRESSURE JET IMPACT AREA AT THE FELT OR FABRIC IS SIGNIFICANTLY GREATER THAN THE NOZZLE ORIFICE DIAMETER (MORE THAN DOUBLE, AT THE RECOMMENDED 6" - 12" DISTANCE FOR THE ORIFICE), OSCILLATOR TRAVERSING SPEED SHOULD BE CALCULATED USING THE NOZZLE ORIFICE DIAMETER AS INDICATED BELOW.

CALCULATE AND ADJUST THE OSCILLATION OR NOZZLE TRAVERSE SPEED FOR THE LOWEST EXPECTED MACHINE PRODUCTION SPEED. THIS ENSURES MORE THAN DOUBLE COVERAGE AT ALL OPERATING SPEEDS.

GREATER THAN 100% COVERAGE WILL ASSURE FULL COVERAGE IN THE EVENT THAT THE FELT DOES NOT TRACK PERFECTLY AROUND ITS RUN.

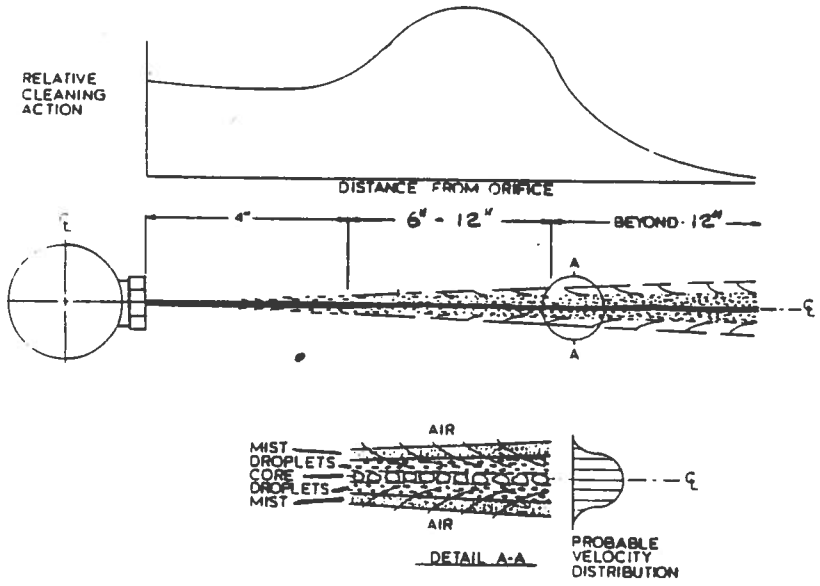

ILLUSTRATION OF HIGH PRESSURE CLEANING JET

LOW FREQUENCY OSCILLATORS

OPTIMUM TRAVERSING SPEED (.040" JET)

$$\frac{\text{FPM}}{\text{FT.}} \times .040 = \text{TRAVERSING SPEED (INCHES/MINUTE)}$$

FPM = MACHINE SPEED (FEET/MINUTE)

FT. = FELT LENGTH (FEET)

.040 = WATER JET WIDTH (INCHES)

EXAMPLE: MACHINE SPEED: 2000 FPM

FELT LENGTH: 65 FEET

$$\frac{2000}{65} \times .040 = 1.23\text{"/MINUTE}$$

ADDENDUM #1

PTS-90 SINGLE JET TRAVERSING SHOWER

OPERATING INSTRUCTIONS

Metric Control Panel

The display information and the programming input for metric shower panels, should be interpreted as follows:

Limits: All limits are displayed and entered in "centimeters".

Traversing Head Location: Is displayed in "centimeters".

Traversing Speed:

Display: "Centimeters/minute" up to 99 cm/min.

Over 99 cm/min display is "meters/minute".

Input (Programming): All speed "input" information should be in "centimeters/minute".

Note: "Display Speed" function will indicate speed in cm/min regardless of range.

FORM #397
1/7/87
MRH.

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PROXIMITY SWITCH TROUBLESHOOTING FOR PTS-90

1. With the power on, verify the proximity switch test points shown in Table 1.

Voltages are taken with respect to system ground found at power supply or chassis ground lug.		PTS-90		
		Front Limit	Rear Limit	Motion Detect
Group A	23 to 25 VDC	6TB-33	6TB-34	6TB-35
	Zero VDC	6TB-4	6TB-4	6TB-4
Group B	Two-Wire Switches Activated: 20 to 22 / Unactivated: 1.4 to 1.9	6TB-17	6TB-18	6TB-19
	Three-Wire Switches Activated: 12 to 15 / Unactivated: 1.4 to 1.9 Activated: 23 to 25 / Unactivated: 1.4 to 1.9	6TB-17	6TB-18	6TB-19

TABLE 1

Proximity Switch Test Points

2. If groups A&B both operate as shown in the table, the switches are fine and the trouble must lie in the gray box, blue box or motor circuit.

3. If group A only operates as shown in the table (group B does not), the trouble lies in the switch, its wiring or fuses.

4. If group A does not operate as shown in the table, disconnect the switch from the panel and retest group A. If group A now operates as shown, the switch, or its wiring is faulty. If group A still does not operate as shown, however, the problem is most likely located in the gray box.

5. Faulty switches should be replaced.

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REPLACING PROXIMITY SWITCHES:

1. Remove end plate from enclosure at tending side.

2. Remove nozzle and pull cart out of enclosure far enough to work on it.

3. Remove defective switch(es) from mounting bracket.

4. Secure replacement switch to bracket, sensing end facing target.

5. Adjust the distance from the sensor to the target to approximately 1/16". If the sensor is too distant, it will not become activated; if it is too close, it may make physical contact with the target or pultrusion, causing physical damage. It may be necessary to bend the bracket slightly to obtain the best sensor alignment.

6. Fine adjust the sensor distance until it functions consistently under operating conditions.

PTS-90 TROUBLESHOOTING

ISOLATING THE STEPPING MOTOR CIRCUIT

In the event of loss of motion (error 2), it is necessary to de ermine whether or not the motor will run independent of the control circuitry. This can be achieved with the stepper motor/board tester, shown schematically in the diagram.

1. Turn the panel power off.

2. Unscrew the STM 103 TRANSLATOR MODULE board from the panel and disconnect it from the card edge connector. Connect the stepper motor/board tester to the card edge in its place. Ensure that, when set down, the pins will not make contact with any of the panel circuitry.

3. Connect the lead from the tester to the +24 volt power supply.

4. Turn the panel power on.

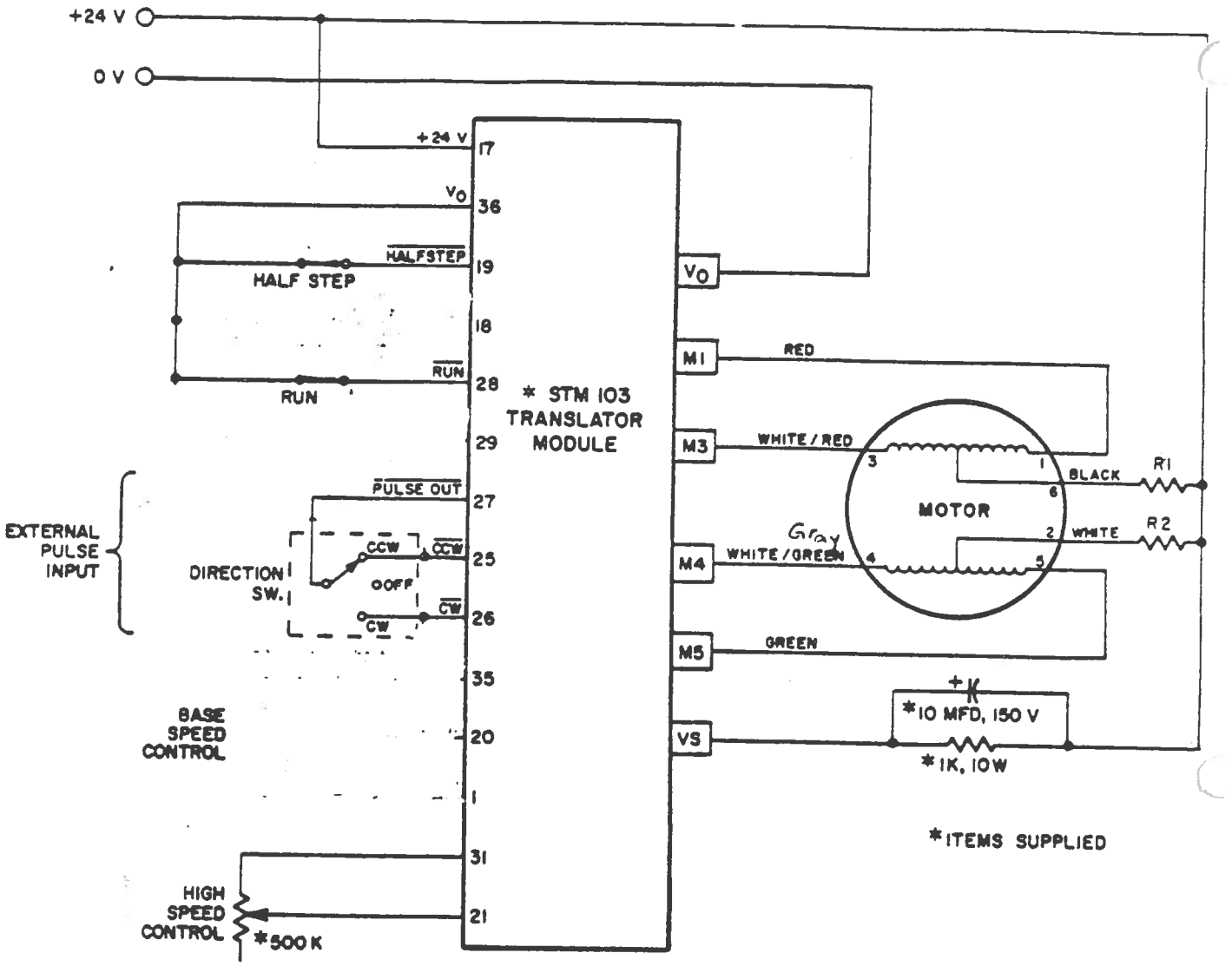
5. Use the direction switch and the speed control on the tester to control the motor. A clockwise rotation will move the cart to the left (toward the tending side of a tending-side-left machine); counterclockwise rotation moves the cart in the opposite direction.

6. Verify that the motor is working by driving to one end of the enclosure at high speed, then driving it away again, checking visually for motion. The limit sensors and rotation sensor will operate while doing this, but will not affect the motor behavior.

7. If the motor can be driven this way, both the motor and the translator module are working properly. At this point, the rotation sensor operation can be checked by driving the motor at a modest pace and checking the sensor as described in Form #476.

8. If the motor cannot be driven in this way, the following are possibilities:

   A. The motor is not working.
   B. The motor wiring is faulty (check the connections in the gray box, the enclosure, and the resistors).
   C. The translator module is not working.
   D. The gray box power supply is not working.



CONNECTION DIAGRAM

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PTS-90 SPECIAL INSTRUCTIONS

PROCEDURE FOR USE OF "SECURITY CODE"

NOTE: This procedure is to be considered CONFIDENTIAL and is to be shared with mill "supervisory" personnel only.

INTRODUCTION

An "optional" feature of the controls for the PTS-90 Single Jet Shower is the use of a security code, which when activated by ESD Factory Personnel, allows "programming" changes to be made to the controls; only by operating personnel given the special access security code number.

OPERATING PROCEDURE

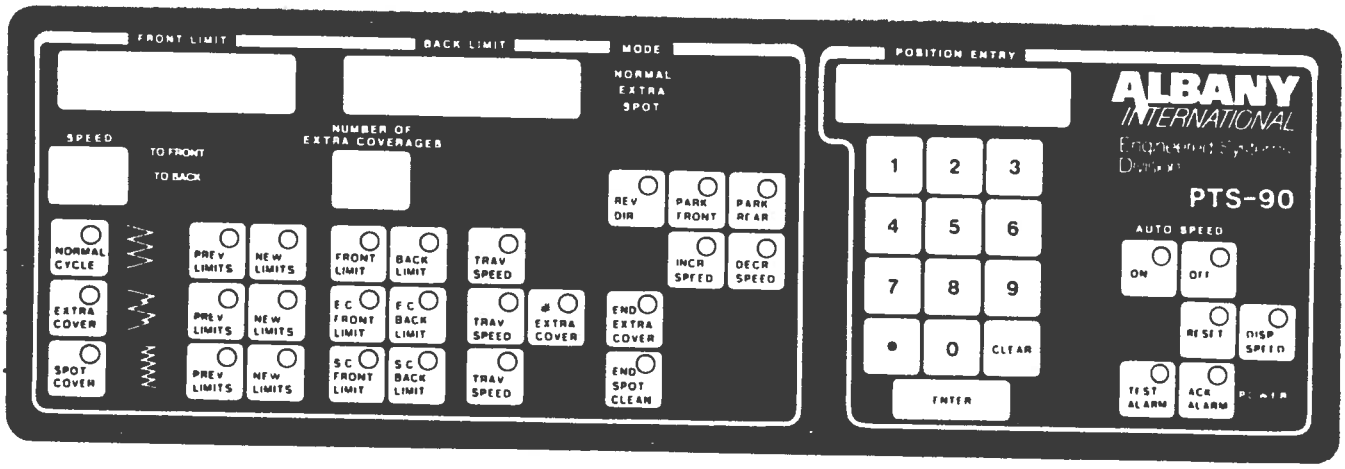

FIGURE 1
CONTROL PANEL LAYOUT

FORM #470
1/7/87

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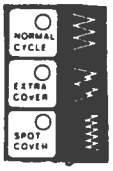
PROCEDURE (continued)

With the system operating, to change programmed limits, or other programmable information:

1. Push desired keypad "cycle" key.



2. Follow programming instructions - FORM #397.

3. Push

4. Before inserting new limit "data", enter security code 12801 through keypad - PUSH [ENTER] .

   NOTE: Any effort to enter "new" limits without using security code input, will not work. Unit will revert to "old" limits.

5. NEW LIMITS CAN NOW BE PROGRAMMED - FOLLOWING THE NORMAL PROCEDURE.

6. SPECIAL NOTE: This security code procedure does not apply to the special "memory clearing procedure" (FORM #467). It is possible to "erase" all programmable memory without using the security code. The procedure outlined in FORM #467 should be considered extremely CONFIDENTIAL as outlined in the introductory notes.

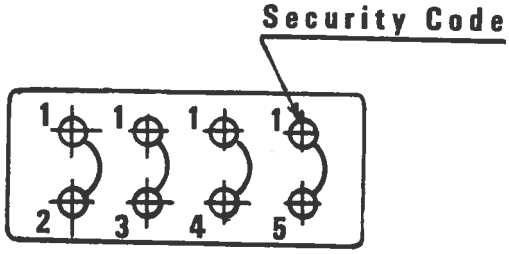
ACTIVATION INSTRUCTIONS

To achieve this feature (or to delete this feature), the following procedure should be initiated by an ESD factory trained representatives only.

1. Remove back cover from Control Panel (Blue Box).

2. Locate terminal strip JP-25.

   When viewing the control panel from the back side, with the connector at the bottom, this terminal strip is located in the upper L.H. corner, and will be identified.



Terminal Strip JP-25

3. To operate units without the security code - ensure that jumper is in place between terminals 1 and 5.

4. To activate the "security code" feature, remove jumper between terminals 1 and 5.

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PTS-90 - SPECIAL INSTRUCTIONS

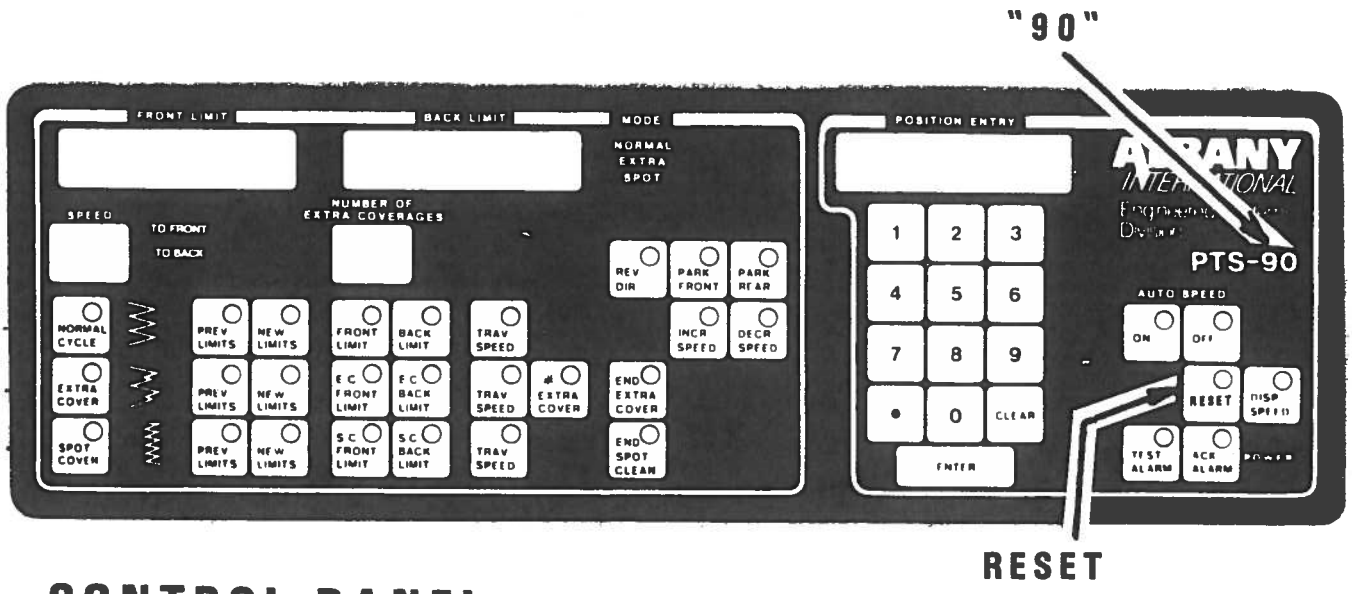
"PROGRAM CLEAR" PROCEDURE

NOTE: The information in this instruction is to be considered "CONFIDENTIAL"; and is primarily to be used by ESD Service Personnel for troubleshooting. This information should be given to customers only in an emergency situation, and only to supervisory personnel.

Introduction:

If erratic behavior of the PTS-90 controls is noted, the "one-step" procedure outlined below will ERASE all the programmable memory. Its use should be followed by reprogramming as outlined in Form #397.

Procedure:



CONTROL PANEL

CAUTION : Before Initiating This Proceedure, Please Ensure That The Present Operating "Limit" and "Speed" Settings Are Noted To Facilitate Re-Programming

1) Press "90" area of PTS-90 panel identification.
2) Press "RESET".

MEMORY IS NOW "CLEARED" AND READY TO REPROGRAM.

FORM #467
12/16/86
mfs

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PTS-90 SPECIAL INSTRUCTIONS

"RAPID RETURN" FEATURE

This "OPTIONAL" feature is normally factory set prior to shipment. When activated, the feature allows "Rapid Return" of the traversing head from the back to the front, at the maximum unit speed of 99 inches per minute.

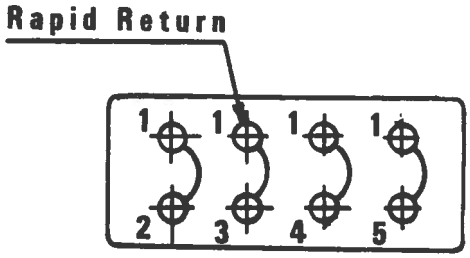
When this feature is not activated, the traversing head will travel in both directions at the programmed control speed.

For units installed without this feature activated, or to remove this feature, the following procedure should be initiated by ESD factory trained service personnel only.

1. Remove back cover from Control Panel (Blue Box).

2. Locate terminal strip JP-25.

   When viewing the control panel from the back (cover side), with the connector at the bottom, terminal strip JP-25 is located in the upper L.H. corner, and will be identified.



Terminal Strip JP-25

3. With a jumper removed between terminals 1 and 3, the RAPID RETURN feature is activated.

   To delete this feature, install the jumper between terminals 1 and 3.

FORM #471
1/7/87
REVISED:4/22/87

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