THE
DEXTER
COMPANY

55 LB. OPL COMPUTER WASHERS

Thoroughbred 900

Model WCN55AFHX 208-240 volts 60 hz.
Single or Three Phase

Model WCN55AFH 208-240 volts 60 hz.
Single or Three Phase

Model WCN55AFHXH 208-240 volts 60 hz.
Three Phase Electric Heated Computer Industrial Washer

Service Procedures and Parts Data

Part No. 8533-032-002 4/02
Fairfield, Iowa 52556

Telephone 641-472-5131
Fax 641-472-6336

WARNING

FOR YOUR SAFETY, THE INFORMATION IN THIS MANUAL MUST BE FOLLOWED TO MINIMIZE THE RISK OF FIRE OR EXPLOSION OR TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

Do not store gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

IF YOU SMELL **GAS**:

Do Not try to light any appliance.
Do Not touch or operate any electrical switch.
Do Not use any phone in your building.
Do clear the room, building or area of all occupants.
Do immediately call your gas supplier from a neighbors phone. Follow the gas suppliers instructions.
Do call the fire department if your gas supplier is not available.

Table of Contents

SECTION 5

SECTION 6

SECTION 7

SECTION 8

Section 1
Specifications

Thoroughbred 900 Computer OPL Washer

Model	Voltage
WCN55AFH	208-240 volts, 60 Hz, Single Phase or Three Phase
WCN55AFHX	208-240 volts, 60 Hz, Single Phase or Three Phase
WCN55AFHXH	208-240 volts, 60 Hz, Three Phase

Dexter Cycle Times Computer Washer

Cycles 1-30		Chemical Signal	Water Level
Flush	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Prewash	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Wash	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Rinse 1	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Rinse 2	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Rinse 3	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Rinse 4	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable)		
Int. Spin	0-10 min.		
Rinse 5	0-30 min.	1-6	High or low
Drain	40 sec. (not programmable).		
Final Extract	1-10 min.		
Total *	1-360 min.		

* Cycle times are approximate and do not include fill time from empty to low level.
Fill time from low to high level is included as computer operates during this period.

T-900 120 G Specifications

Capacity

55lbs. 24.8kg.

Dimensions

Cylinder Depth	22"	55.9cm
Cylinder Diameter	30"	76.2cm

Service

Cylinder Volume (cubic feet)	9.0	255.1dm3
Door Opening	15 1/4"	38.74cm
Door Height (floor to bottom of door)	18 3/8"	46.67cm
Overall Height	53 7/8"	136.84cm
Cabinet Width	34 3/8"	87.31cm
Overall Depth	38 3/4"	98.34cm
Drain Diameter (O.D.)	3"	7.62cm
Drain Height (floor to center of outlet)	7 1/2"	19.05cm
Recommended Clearance Between Machines (minimum)	1/2"	1.27cm
Necessary Service Clearance Recommended Behind Machine	24"	60.96cm

Voltage 60 Hz.

Three Phase	208-240
Single Phase	208-240

Three Phase	3 wire plus ground
Single Phase	2 wire plus ground

Wire Size (min.)

Three Phase	12
Single Phase	12

Water

Average Water Usage
Normal Cycle with Full Load 69 gal.

Hot Water (Fahrenheit/Celsius) 160F 0C

Water Pressure (min/max) 30-120psi
Water Inlet Size (hose thread) 3/4"

Water Flow Rate (gals./min.) 9 34.06(LPM)

Cylinder RPM

Tumble Speed	43
Intermediate Extract Speed	375
Intermediate Extract G Force	60
Final Speed Extract G-Force	120
Final Speed Extract Speed	531
Cylinder Direction in Extract	counter clockwise

Motor H.P.

Wash (single phase)	3	2.24kw
(three phase)	3	2.24kw
Extract (single phase)	3	2.24kw
(three phase)	3	2.24kw

Amperage (average measured on L1)

Wash (three phase)	3.8
Wash (single phase)	6.8
Int. Extract (three phase)	1.8
Int. Extract (single phase)	3.1
Final Extract (three phase)	3.1
Final Extract (single phase)	5.0

Running Amps (maximum)

Single Phase	10.0
Three Phase	5.4

Circuit Breaker (amps)

Three Phase	15
Single Phase	15

Built-in Controls Circuit Breaker yes
Built-in Motor Protection yes

Programmable wash cycles

30 cycles with each Up to 9 Bathes

Wash Temperatures hot, warm &cold

Rinse Temperatures hot, warm & cold

Mounting Hole Dimensions

Left to Right	27 3/4"	70.48cm
Front of Cabinet to First Hole	2 3/4"	6.98cm
First Hole to Second Hole	23"	58.42cm
Second Hole to Third Hole	11"	27.94cm
Mounting Bolt Diameter	3/4"	1.90cm

Hole Diameter in Base	1"	2.54cm
Concrete Thickness (min.)	8"	20.3cm
Recommended Mounting Height	4"-10"	10-25cm

Weight

Shipping	1094lbs.	492.8kg
Net	1045lbs.	470.7kg

T-900 140 G Specifications

Capacity
55lbs. 24.8kg.

Dimensions
Cylinder Depth	22"	55.9cm
Cylinder Diameter	30"	76.2cm

Service
Cylinder Volume (cubic feet)	9.0	255.1dm3
Door Opening	15 1/4"	38.74cm
Door Height (floor to bottom of door)	18 3/8"	46.67cm
Overall Height	53 7/8"	136.84cm
Cabinet Width	34 3/8"	87.31cm
Overall Depth	38 3/4"	98.34cm
Drain Diameter (O.D.)	3"	7.62cm
Drain Height (floor to center of outlet)	7 1/2"	19.05cm
Recommended Clearance Between Machines (minimum)	1/2"	1.27cm
Necessary Service Clearance Recommended Behind Machine	24"	60.96cm

Cylinder RPM
Tumble Speed	43
Intermediate Extract Speed	423
Intermediate Extract G Force	60
Final Speed Extract G-Force	140
Final Speed Extract Speed	573
Cylinder Direction in Extract	counter clockwise

Motor H.P.
Wash (single phase)	3	2.24kw
(three phase)	3	2.24kw
Extract (single phase)	3	2.24kw
(three phase)	3	2.24kw

Amperage (average measured on L1)
Wash (three phase)	3.8
Wash (single phase)	6.8
Int. Extract (three phase)	1.8
Int. Extract (single phase)	3.1
Final Extract (three phase)	3.1
Final Extract (single phase)	5.0

Running Amps (maximum)
Single Phase	10.0
Three Phase	5.4

Circuit Breaker (amps)
Three Phase	15
Single Phase	15

Built-in Controls Circuit Breaker yes
Built-in Motor Protection yes

Voltage 60 Hz.
Three Phase	208-240
Single Phase	208-240

Three Phase	3 wire plus ground
Single Phase	2 wire plus ground

Wire Size (min.)
Three Phase	12
Single Phase	12

Water
Average Water Usage
Normal Cycle with Full Load 69 gal.

Hot Water (Fahrenheit/Celsius) 160F 0C
Water Pressure (min/max) 30-120psi
Water Inlet Size (hose thread) 3/4"

Water Flow Rate (gals./min.) 9 34.06(LPM)

Programmable wash cycles
30 cycles with each Up to 9 Bathes

Wash Temperatures	hot, warm &cold
Rinse Temperatures	hot, warm & cold

Mounting Hole Dimensions
Left to Right	27 3/4" 70.48cm
Front of Cabinet to First Hole	2 3/4" 6.98cm
First Hole to Second Hole	23" 58.42cm
Second Hole to Third Hole	11" 27.94cm
Mounting Bolt Diameter	3/4" 1.90cm
Hole Diameter in Base	1" 2.54cm
Concrete Thickness (min.)	8" 20.3cm
Recommended Mounting Height	4"-10" 10-25cm

Weight
Shipping	1094lbs.	492.8kg
Net	1045lbs.	470.7kg

ELECTRIC HEATED T-900 140 G Specifications

Capacity
55lbs. 24.8kg.

Dimensions
Cylinder Depth	22"	55.9cm
Cylinder Diameter	30"	76.2cm

Service
Cylinder Volume (cubic feet)	9.0	255.1dm3
Door Opening	15 1/4"	38.74cm
Door Height (floor to bottom of door)	18 3/8"	46.67cm
Overall Height	53 7/8"	136.84cm
Cabinet Width	34 3/8"	87.31cm
Overall Depth	38 3/4"	98.34cm
Drain Diameter (O.D.)	3"	7.62cm
Drain Height (floor to center of outlet)	7 1/2"	19.05cm
Recommended Clearance Between Machines (minimum)	1/2"	1.27cm
Necessary Service Clearance Recommended Behind Machine	24"	60.96cm

Cylinder RPM
Tumble Speed	43
Intermediate Extract Speed	423
Intermediate Extract G Force	60
Final Speed Extract G-Force	140
Final Speed Extract Speed	573
Cylinder Direction in Extract	counter clockwise

Motor H.P.
Wash (single phase)	3	2.24kw
(three phase)	3	2.24kw
Extract (single phase)	3	2.24kw
(three phase)	3	2.24kw

Amperage (average measured on L1)
Wash (three phase)	3.8
Wash (during heating bath)	58
Int. Extract (three phase)	1.8
Final Extract (three phase)	3.1

Running Amps (maximum)
Three Phase	60

Circuit Breaker (amps)
Three Phase	60

Built-in Controls Circuit Breaker yes
Built-in Motor Protection yes

Voltage 60 Hz.
Three Phase	208-240

Three Phase	3 wire plus ground

Wire Size (min.)
Three Phase	8-10

Water
Average Water Usage
Normal Cycle with Full Load 69 gal.

Hot Water (Celsius) max. 90C
Water Pressure (min/max) 30-120psi
Water Inlet Size (hose thread) 3/4"

Water Flow Rate (gals./min.) 9 34.06(LPM)

Programmable wash cycles
30 cycles with each Up to 9 Bathes

Wash Temperatures programmable 20C-90C

Rinse Temperatures programmable 20C-90C

Mounting Hole Dimensions
Left to Right	27 3/4"	70.48cm
Front of Cabinet to First Hole	2 3/4"	6.98cm
First Hole to Second Hole	23"	58.42cm
Second Hole to Third Hole	11"	27.94cm
Mounting Bolt Diameter	3/4"	1.90cm
Hole Diameter in Base	1"	2.54cm
Concrete Thickness (min.)	8"	20.3cm
Recommended Mounting Height	4"-10"	10-25cm

Weight
Shipping	1098lbs.	492.8kg
Net	1048lbs.	470.7kg

30 Preset Wash Cycles

All wash cycles can be reprogrammed (see Section 2)

Application	Cycle #	Description
Shirt Laundry	1	Shirts (No Starch)
	2	Shirts (Starch)
Hotel/Motel	3	White Sheets
	4	White Pillowcases
	5	White Towels, Bath Mats & Wash Cloths
	6	Colored Sheets & Towels
	7	Delicate Wash
	8	Housekeeping Rags & Mops
	9	Housekeeping Uniforms
	10	Stain Treatment
	11	Reclaim Part 1
	12	Reclaim Part 2
Health Care	13	Sheets & Pillowcases
	14	Towels
	15	Diapers & Pads
	16	Personals
	17	Delicates
Food & Beverage	18	White (cotton or blend) Table Linen
	19	Colored (cotton or blend) Table Linen
	20	White (100% polyester) Table Linen
	21	Colored (100% polyester) Table Linen
	22	White Chef Coats
	23	Kitchen & Maintenance Rags
	24	White or Colored (cotton or blend) Table Linen (Oxygen Bleach)
	25	White or Colored (100% polyester) Table Linen (Oxygen Bleach)
	26	White Chef Coats (Oxygen Bleach)
	27	Kitchen & Maintenance Rags (Oxygen Bleach)
Other	28	Terry (Oxygen Bleach)
	29	Terry (no iron) (Oxygen Bleach)
	30	Open
Diagnostic Test Cycle	31	See Trouble Shooting Section

Cycle 1

Shirt/ Laundry

Shirts (Oxygen Bleach/no starch)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	12	HH (Hot)	LO	Detergent & Oxygen Bleach	
Rinse 1	2	CH (Warm)	HI		
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO		3

Cycle 2

Shirt/ Laundry

Shirts (Oxygen Bleach/with starch)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	12	HH (Hot)	LO	Detergent & Oxygen Bleach	
Rinse 1	2	CH (Warm)	HI		
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	7	CH (Warm)	LO	Starch	3

Cycle 3

Hotel/Motel

White Sheets (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash	7	HH (Hot)	LO	Detergent	
Wash	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 1	2	CH (Warm)	HI		1
Rinse 2	2	CH (Warm)	HI		
Rinse 3					
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	4

Cycle 4

Hotel/Motel

White Pillowcases (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	7	HH (Hot)	LO	Detergent	
Prewash	1	HH (Hot)	HI		
Wash	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 1	2	CH (Warm)	HI		1
Rinse 2	2	CH (Warm)	HI		
Rinse 3					
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	4

Cycle 5

Hotel/Motel

White Towels (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	7	HH (Hot)	LO	Detergent	
Prewash	1	HH (Hot)	HI		
Wash	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 1	2	CH (Warm)	HI		1
Rinse 2	2	CH (Warm)	HI		
Rinse 3					
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	5

Cycle 6

Hotel/Motel

Colored Sheets & Towels (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	7	HH (Hot)	LO	Detergent/Chlorine Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	4

Cycle 7

Hotel/Motel
Delicates (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	8	CH (Warm)	HI	Detergent/Chlorine Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	4

Cycle 8

Hotel/Motel
Rags & Mops (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	2	CH (Warm)	HI		
Rinse 1	2	CH (Warm)	HI		
Rinse 2	7	HH (Hot)	LO	Detergent	
Rinse 3	2	HH (Hot)	HI		
Rinse 4	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 5	2	CH (Warm)	HI		1
Final Rinse	2	CH (Warm)	HI		5

Cycle 9

Hotel/Motel
Uniforms (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	7	HH (Hot)	LO	Detergent	
Rinse 1	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/soft	4

Cycle 10

Hotel/Motel

Stain Treatment (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	30	HH (Hot)	LO	Detergent/Chlorine Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	HH (Hot)	HI		
Rinse 3	2	CH (Warm)	HI		1
Rinse 4					
Rinse 5					
Final Rinse	2	CH (Warm)	LO		4

Cycle 11

Hotel/Motel

Reclaim Part 1 (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash	20	HH (Hot)	LO	Manual	
Rinse 1	3	HH (Hot)	HI		
Rinse 2					
Rinse 3					
Rinse 4					
Rinse 5					
Final Rinse	3	HH (Hot)	HI		1

Cycle 12

Hotel/Motel

Reclaim Part 2 (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash	3	HH (Hot)	HI		
Wash	20	HH (Hot)	LO	Manual	
Rinse 1	3	HH (Hot)	HI		
Rinse 2	3	HH (Hot)	HI		
Rinse 3	10	HH (Hot)	LO	Bleach	
Rinse 4	3	HH (Hot)	HI		1
Rinse 5					
Final Rinse	3	CH (Warm)	HI		4

Cycle 13

Health Care
Sheets & Pillowcases (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	7	HH (Hot)	LO	Detergent	
Rinse 1	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 14

Health Care
Towels (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	7	HH (Hot)	LO	Detergent	
Rinse 1	1	HH (Hot)	HI		
Rinse 2	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 3	2	CH (Warm)	HI		1
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	5

Cycle 15

Health Care
Diapers & Pads (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	2	CH (Warm)	HI		
Rinse 1	7	HH (Hot)	LO	Detergent	
Rinse 2	2	HH (Hot)	HI		
Rinse 3	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 4	2	CH (Warm)	HI		1
Rinse 5	2	CH (Warm)	HI		
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 16

Health Care
Personals (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash					
Wash	7	HH (Hot)	LO	Detergent/Chlorine Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 17

Health Care
Delicates (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	7	CH (Warm)	HI	Detergent/Chlorine Bleach	
Rinse 1	2	CH (Warm)	HI		
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	HI	Sour/Soft	3

Cycle 18

Food & Beverage
White Cotton or Blend Table Linen (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 3	2	CH (Warm)	HI		1
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 19

Food & Beverage

Colored Cotton or Blend Table Linen (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent	
Rinse 1	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 20

Food & Beverage

White 100% Polyester Table Linen (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 3	2	CH (Warm)	HI		
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 21

Food & Beverage

Colored 100% Polyester Table Linen (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent	
Rinse 1	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 2	2	CH (Warm)	HI		
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	4

Cycle 22

Food & Beverage

White Chef Coats (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	5	HH (Hot)	LO	Detergent	
Prewash	1	HH (Hot)	HI		
Wash	8	HH (Hot)	LO	Detergent	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 3	2	CH (Warm)	HI		1
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour	4

Cycle 23

Food & Beverage

Kitchen & Maintenance Rags (chlorine bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	5	HH (Hot)	LO	Detergent	
Prewash	2	HH (Hot)	HI		
Wash	8	HH (Hot)	LO	Detergent	
Rinse 1	2	HH (Hot)	HI		1
Rinse 2	7	HH (Hot)	LO	Chlorine Bleach	
Rinse 3	2	CH (Warm)	HI		1
Rinse 4					
Rinse 5					
Final Rinse	2	CH (Warm)	HI		5

Cycle 24

Food & Beverage

White or Colored Cotton or Blend Table Linen (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	1	HH (Hot)	HI		
Rinse 2	2	HH (Hot)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Starch	4

Cycle 25

Food & Beverage

White or Colored 100% Polyester Table Linen (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	2	CH (Warm)	HI		
Prewash					
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	1	HH (Hot)	HI		
Rinse 2	2	HH (Hot)	LO		
Rinse 3	2	CH (Warm)	HI		
Rinse 4	2	CH (Warm)	HI		
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Starch	4

Cycle 26

Food & Beverage

White Chef Coats (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	5	HH (Hot)	LO	Detergent	
Prewash	1	HH (Hot)	HI		
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	HI	Sour	4

Cycle 27

Food & Beverage

Kitchen & Maintenance Rags (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	5	HH (Hot)	LO	Detergent	
Prewash	2	HH (Hot)	HI		
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	1	HH (Hot)	HI		
Rinse 2	2	HH (Hot)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	2	CH (Warm)	HI	Sour	5

Cycle 28

Other
Terry (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	3

Cycle 29

Other
Terry No Iron (oxygen bleach)

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush	3	CH (Warm)	HI		
Prewash	2	CH (Warm)	HI		
Wash	10	HH (Hot)	LO	Detergent/Oxygen Bleach	
Rinse 1	2	HH (Hot)	HI		
Rinse 2	2	CH (Warm)	HI		1
Rinse 3	2	CH (Warm)	HI		
Rinse 4					
Rinse 5					
Final Rinse	4	CH (Warm)	LO	Sour/Soft	5

Cycle 30

Segment	Cycle Time	Water Temperature	Water Level	Injection Source	Spin Time
Flush					
Prewash					
Wash					
Rinse 1					
Rinse 2					
Rinse 3					
Rinse 4					
Rinse 5					
Final Rinse					

Section 2
Installation, Programming & Operation

All washers must be installed in accordance with all local, state and national building, electrical, and plumbing codes in effect in the area.

Foundation Requirements
The washer must be securely bolted to a substantial concrete floor, or mounted upon a suitable base which is in turn securely bolted to a substantial concrete floor. Care must be stressed with all foundation work to insure a stable unit, eliminating vibration. All installations must be made on sound concrete floors 8" or thicker.

Mounting - Machine grouting is highly recommended for the longevity of the installation.
A concrete pad or steel base which elevates the machine 4 to 10 inches above the floor level is recommended to provide easy access to the loading door. Allow a minimum of 24" of clearance behind the rear of the machine for service. Six bolts are required to mount the washer to the steel base or concrete pad.

Mounting Holes
The following pages illustrate the mounting dimensions for the machine and also show a typical concrete pad arrangement.

> **Note: Mounting bolts should be checked frequently to insure that they remain tight. The machine should be checked with a spinning load to be sure there is no unusual vibration or movement between the machine and the base or floor.**

Plumbing
Water supply hoses are furnished with each machine. The threaded connections on the hoses are standard garden hose type thread. Separate hot and cold water lines with shut off valves or faucets for inlet hose connections must be provided, maintaining 30 to 120 p.s.i. water flow pressure. The hot water recovery rate necessary will depend on the length of the cycle and the specific program selected. A hot water temperature of 140 degrees Fahrenheit is recommended for best washing results.

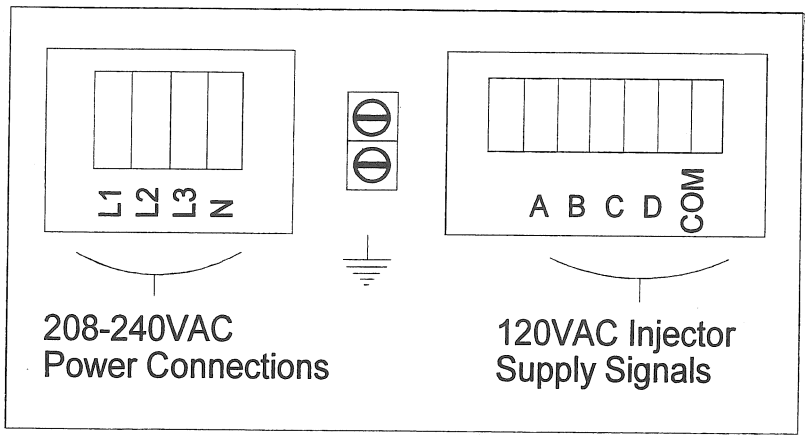
Drain
The drain outlet tube at the rear of the machine is 3" in outside diameter. A flexible hose (Pt. No. 9242-417-003) is available to extend the drain system. Adequate fall must be maintained for proper drainage.

Protective Film
The machine may have protective adhesive film on the front escutcheon area and the front and side stainless steel panels. The film may be peeled off before putting the machine into service.

Electrical (includes chemical pump connections)

Dexter WCN55 series washers are intended to be permanently installed appliances. The machines should be connected to an individual branch circuit not shared by lighting or other equipment. The electrical connection should be sheathed in water proof flexible conduit, or equivalent, with conductors of the proper size and insulation (suggested size below). A power cord is not provided. The following diagram shows the proper power connections to the rear terminal block for both 1 and 3 phase machines. Wiring should be performed by a qualified person.

Electrical power connections are made to the terminal block located at the upper right-rear corner of the washer (viewed from front). The terminal block is accessed by removing the cover.



1 Phase, 208-240 volts, 60 Hz.
connect L1, L2, and ground

3 Phase, 208-240 volts, 60 Hz.
connect L1, L2, L3 and ground
(high leg must go on L3)

Chemical Injection Signals
#0-No Signal #1-A terminal
#2-B terminal #3-C terminal
#4-D terminal #5-A & B
#6-C & D
Com-120VAC common

Suggested Minimum Wire Size -- 12 Ga.

Fusing Requirements: Dual element time delay fuse or equivalent breaker of amperage specified below.

1 Phase/ 3 Phase 15 amp

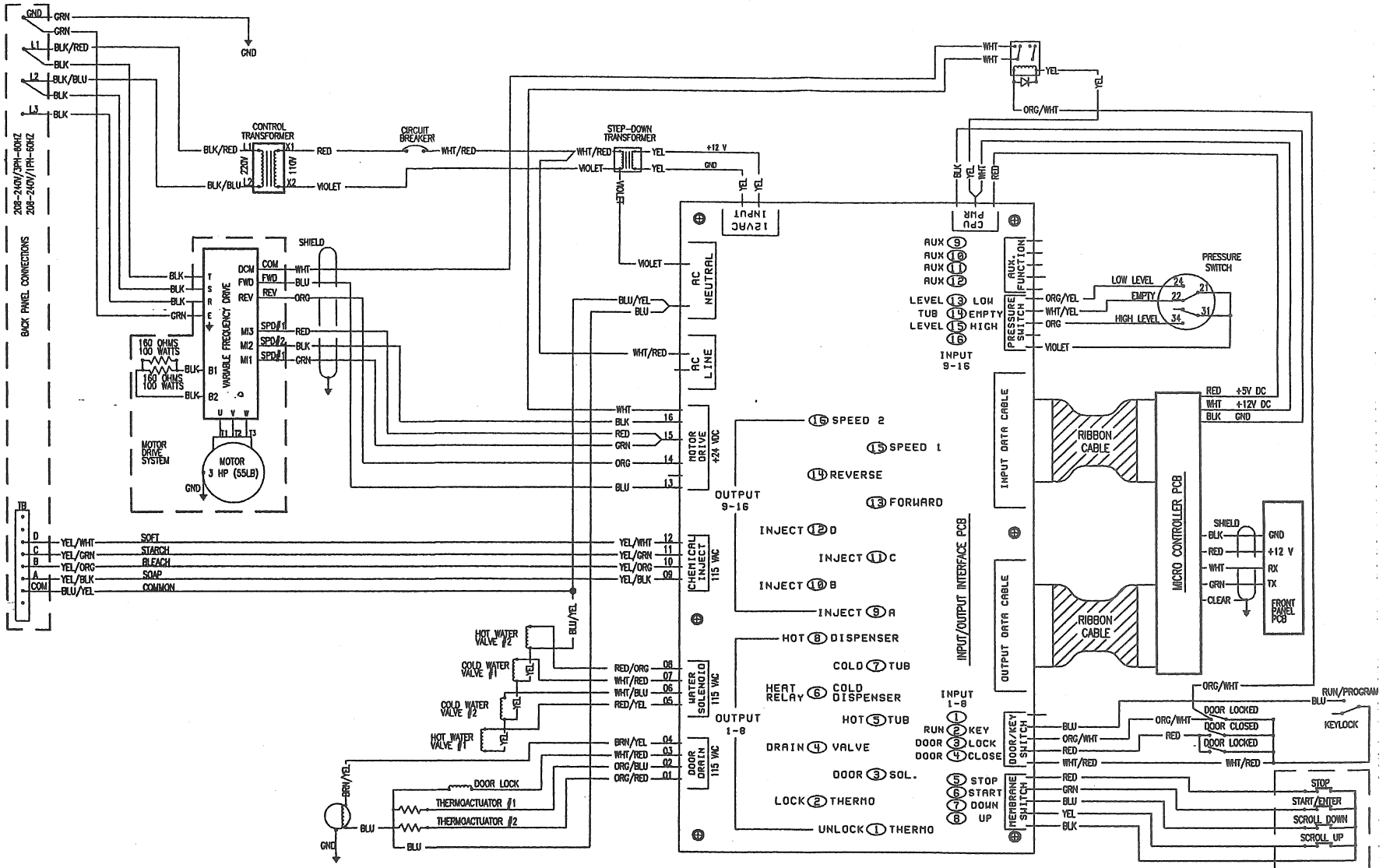
Always disconnect electrical power to the machine before performing any adjustments or service work.

Liquid Chemical Connection

In the left rear corner of the washer is the chemical injection assembly. This is where all chemical hose connections are made. The chemical hoses should be inserted into the round pvc pipe a minimum of 14" and a maximum of 18" to eliminate chemical buildup in the pipe and/or restrict water flow to the tub.

Final Check out

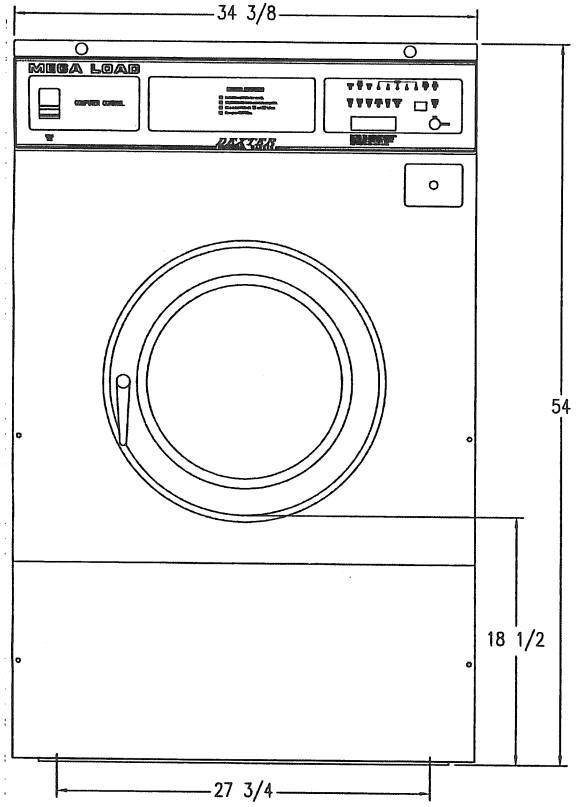
After all mounting, plumbing and electrical work is completed, the washer should be run through a diagnostic cycle (shown on first page of Section 5 Trouble Shooting) and checked for water leaks and proper functioning.



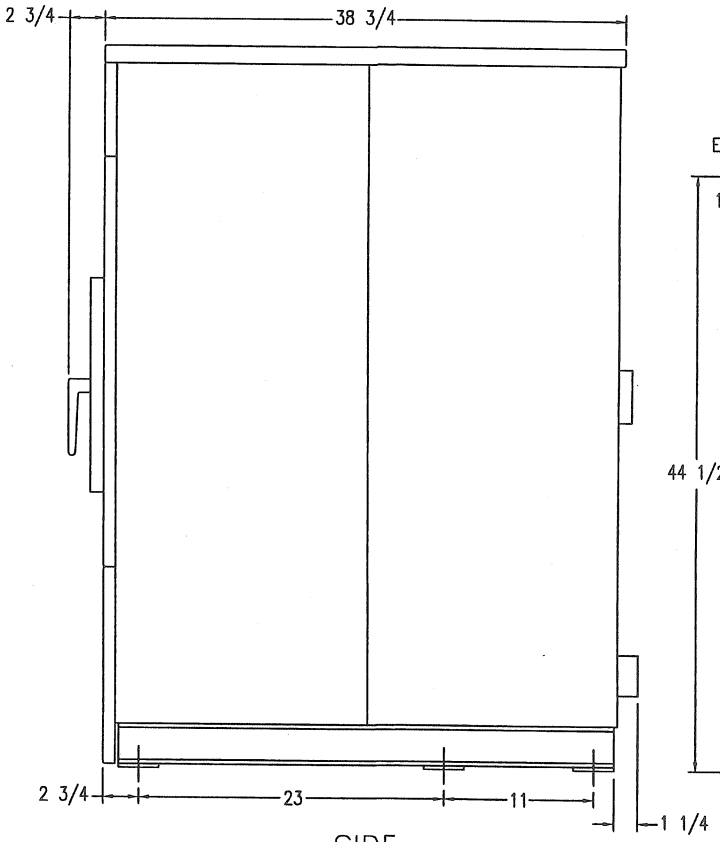
WIRING SCHEMATIC ---- 208-240V, 1PH or 3PH, 60 HZ

9345-887-001 (REV D) 55# COMPUTER WASHER

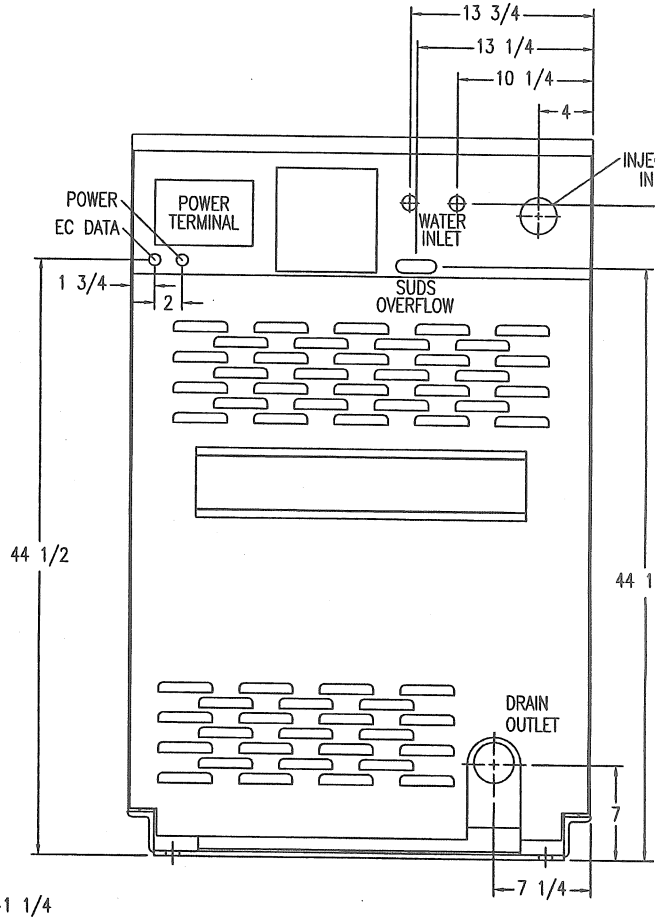
900 SERIES COMMERCIAL WASHER
MOUNTING DIMENSIONS



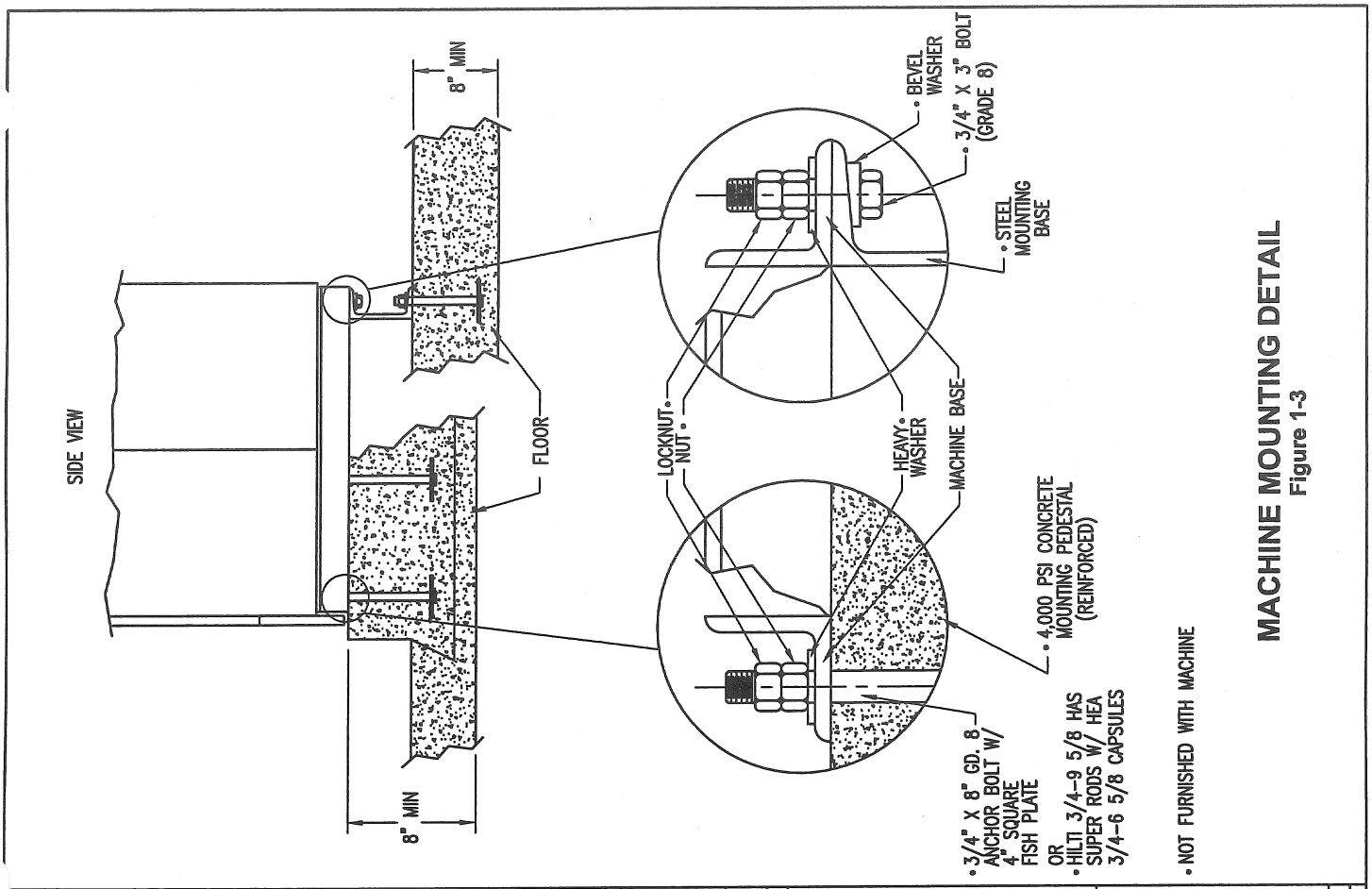
FRONT



SIDE



BACK



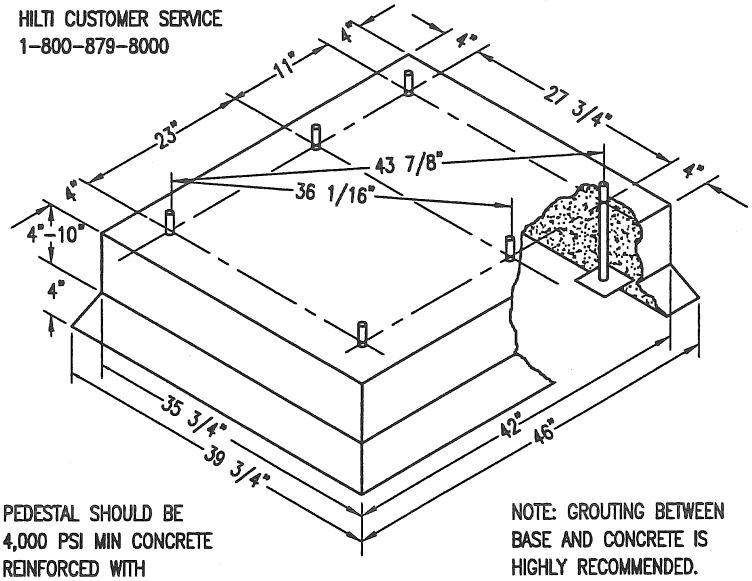
MACHINE MOUNTING DETAIL

Figure 1-3

3/4"X 8" GD. 8 BOLTS
HEADED BY 4" SQ. FISH PLATE OR EQUIV.

OR

'HILTI' ADHESIVE ANCHORING SYSTEM.
USE HILTI 'HEA' 3/4-6 5/8 ADHESIVE CAPSULES
AND HILTI 'HAS' SUPER RODS 3/4-9 5/8
FOR MORE INFORMATION CALL
HILTI CUSTOMER SERVICE
1-800-879-8000

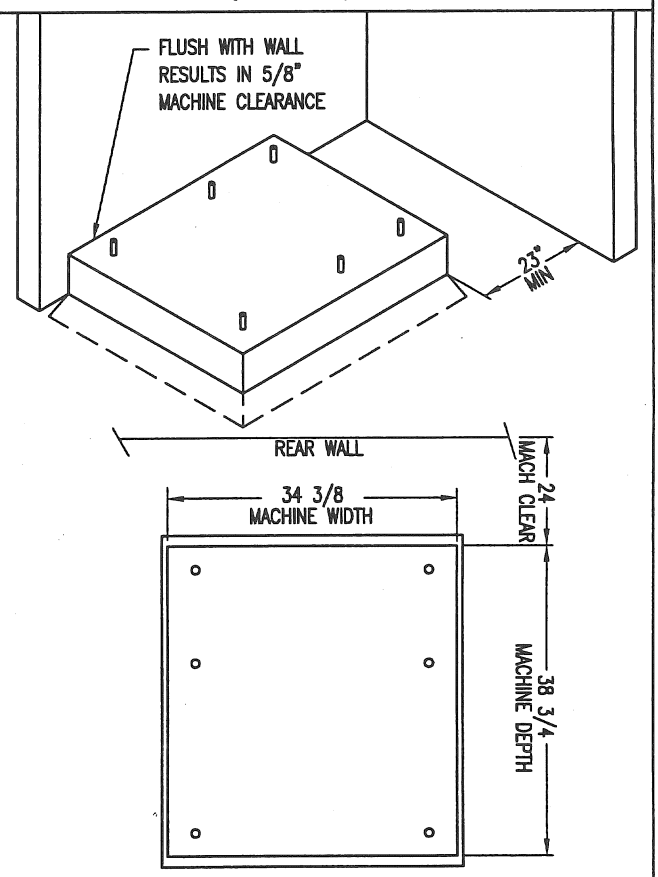


PEDESTAL SHOULD BE 4,000 PSI MIN CONCRETE REINFORCED WITH MESH OR RODS.

NOTE: GROUTING BETWEEN BASE AND CONCRETE IS HIGHLY RECOMMENDED.

CONCRETE PEDESTAL MOUNTING

Figure 1-1



FLOOR OUTLINE

Figure 1-2

Programming Instructions

This washer comes with 29 of the 30 available wash cycles preprogrammed with common industry formulas. All 30 of the cycles can be easily modified by following these steps:

1. **Turn on power to the washer.**
2. **Turn the Run/Program Key to the Program Position.** The program mode LED (bottom row right side) will light.
3. **Select the Cycle to be modified by using the up and down arrows on the touch pad.** Read the Cycle number selected in the display.
4. **Push the green Enter button.**
   The Flush light (top row left side) will now be lit.
5. **Use the Up and Down Arrows to select the segment of the cycle to be modified.** Cycle segments are (lights from top row left to top right) Flush, Prewash, Wash, Rinse 1, Rinse 2, Rinse 3, Rinse 4, Rinse 5 & Final Rinse.
6. **Push the green Enter button.**
   Now the parameters for the individual segment of the cycle selected will light up and can be programmed. The parameters are (lights from bottom row left to right) Cycle Time, Water Temperature, Water Level, Injection Source and Spin Time.
   The Cycle Time Light (bottom row left side) will now be on.
7. **Use the Up and Down Arrows to set the Tumble Time for this segment.** Time is set in minutes with a range of 0 to 30 minutes. Read the Time selected in the display.

Note: If 0 minutes is selected, this complete segment of the cycle will be skipped.

8. **Push the green Enter button.** (This enters any changes made in the previous step to the Tumble Time)
   The Water Temperature Light (bottom row 2nd to left side) will now be on.
9. **Use the Up and Down Arrows to set the Water Temperature for this segment.** "HH" is Hot, "CH" is Warm and "CC" is Cold. Read the Temperature selected in the display.
10. **Push the green Enter button.** (This enters any changes made in the previous step to the Water Temperature)
    The Water Level Light (bottom row middle) will now be on.
11. **Use the Up and Down Arrows to set the Water Level for this segment.** "HI" is High Water Level and "LO" is Low Water Level. Read the Water Level selected in the display.
12. **Push the green Enter button.** (This enters any changes made in the previous step to the Water Level)
    The Injection Source Light (bottom row 2nd from right side) will now be on.
13. **Use the Up and Down Arrows to set the Injection Source for this segment.** "0" gives no signal for the chemical injection pumps. "1" gives a signal to the "A" terminal at the back of the washer. "2" gives a signal to the "B" terminal at the back of the washer. "3" gives a signal to the "C" terminal at the back of the washer. "4" gives a signal to the "D" terminal at the back of the washer. "5" gives signals to both the "A" &"B" terminals at the back of the washer. "6" gives signals to both the "C" &"D" terminals at the back of the washer. "7" is currently not used. Read the Injection Source selected in the display.
14. **Push the green Enter button.** (This enters any changes made in the previous step to the Injection Source)
    The Spin Time Light (bottom row right side) will now be on.
15. **Use the Up and Down Arrows to set the Spin Time for this segment.** Spin Time is set in minutes with a range of 0 to 10 minutes. If 0 minutes is selected, there will be no spin at the end of that particular segment of the cycle. Read the Spin Time selected in the display.

Note: In Final Rinse there is a minimum of 1 minute and a maximum of 10 minutes Spin Time.

16. **Push the green Enter button.** (This enters any changes made in the previous step to the Spin Time)
    The next Cycle Segment Light (listed under 5. above) will now be on.
17. To continue programming other segments of the cycle repeat steps 3 through 16.

To Exit the programming mode, one of the top row of lights must be on. Then push the red Stop button and turn the Run/Program Key back to the Run position.

The Select Cycle Light (right side of display) will now be on.

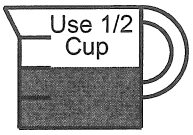
Operating Instructions

Starting the Washer

A. Load the clothes in the cylinder and latch the door. Check to insure that clothes do not get caught between the door gasket and the tub front.

B. Make the appropriate cycle selection for the wash load by pushing the up and down arrows on the touch pad.

C. To manually add wash compounds, pour low-sudsing powdered detergent in the amount shown below into the detergent dispenser on top of the machine. Rinse conditioners may also be added to the dispenser. The correct location is shown on the dispenser lid.



D. To manually add bleach in Rinse, pour bleach in round opening (location shown on dispenser lid) in top of washer.

E. To start the washer, push the green Start button.

F. To pause for an extended soak, push the red Stop button for 1 second.
To continue the cycle, push the green Start button.

G. To stop and clear the wash cycle, hold the red Stop button for 3 seconds.

Safety Door Lock

If power is interrupted the Safety Door Lock delays opening the door until it is safe to do so. If power failure occurs or if power is interrupted during maintenance, it will be necessary to wait 2 to 3 minutes before the door can be opened.

End of Cycle

When the cycle is completed, the washer will stop, the End of Cycle Light will come on, the Buzzer sounds and the loading door will unlock. It can be opened by turning the door handle to the indicated position and pulling. Leave the clothes door open when the machine is not in use.

Section 3

Test with Square "D" type drive

55 LB OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Variable Frequency Drive & Micro Test Procedure

This testing procedure should be followed. The white wire coming from the Variable Frequency is used as common and runs through a set of contacts on the Run Relay. Use a common that is mounted on the testing terminal strip or the common with the yellow jumper for testing. Example : For REV. rotation ,test between terminals RV and COM. and a 24VDC reading should be there when that rotation is called for from the Input/Output PCB. The common with the yellow jumper may also be used for all 24VDC checks. Source power will be connected to terminals L1,L2,L3. Terminal U at VFD. will have T1 for motor connected. Terminal V will have T2 connected from motor. Terminal W will have T3 connected from the motor. When intermediate extract is called for, between LI2 and common there should be a 24VDC reading. For high extract between terminal LI1& LI3 and common there should now be a added 24VDC reading. The Variable Frequency Drive also uses a pair of braking resistors to dissipate voltage when motion has been signaled to stop. In this model with a SQUARE D BRAND variable frequency drive we use 2 -100 ohms resistors connected to terminals PA and PB. PLEASE REMEMBER THAT WHEN TESTING THESE RESISTORS A 100 ohm READING DOESN'T ALWAYS MEAN A GOOD RESISTOR. Heat load may cause breakdown. If these resistors are grounded or open they could create a malfunction. THESE TWO RESISTORS ARE VERY CRITICAL TO PROPER OPERATION OF THIS UNIT AND MUST OPERATE PROPERLY!!!!!!!!!!!!!!!!!!

The single red LED in the middle of the CPU PCB should be lit when the microprocessor has power and is processing data. Red light flashing means it has power But is NOT processing data. Remove power from machine for 2 minuets to reset board. If no red light, there is no power to the board.

Test with Square "D" type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

BEFORE SERIAL NUMBER #416041

Start Circuit

Power is applied to the control trough on L1 & L2. 208 or 240 VAC goes to the Control Transformer that steps the voltage down to 120 VAC. This voltage then travels through the 1.5 amp Circuit Breaker and on to the Step Down Transformer and the Run Relay on the white/red wire.

The Step Down Transformer steps 120 VAC down to 12 VAC for the input/Output PCB. The Input/Output PCB regulates 12 VAC to 12VDC, to power the output relays, and 5VDC to power the microprocessor.

The Variable Frequency Drive is powered by either L1 & L2 on single phase or L1, L2 & L3 on three phase. 24 VDC leaves the Drive from terminal +24 on the white wire to and through the Run Relay Contacts.

As soon as the door is latched, 12 VDC is supplied from the Input/Output PCB to the Run Relay coil and closes the relay. The Run Relay allows 24 VDC and 120 VAC to pass through contacts to the Input/Output PCB. A 120 VAC signal powers most outputs from the Input/Output PCB . A 24 VDC volt signal powers the motor control outputs.

After selecting a cycle, depressing the Start Button (green input light #6 on Input/Output PCB will be lit while button is depressed) signals the Microprocessor to begin that cycle. All signals come into the Microprocessor through the Input/Output PCB.

The door is locked by sending 120VAC from the Input/Output PCB (red output light #3 on Input/Output PCB will be lit) on the white/red wire to the Door Lock Solenoid. With the door locked a 12VDC signal is sent back to the Input/Output PCB from the Door Locked Switch on the orange/white wire (green input light #3 on Input/Output PCB will be lit).

The Lock Thermoactuator is powered with 120VAC from the Input/Output PCB (red output light #2 on Input/Output PCB will be lit) on the orange/blue wire. The Lock Thermoactuator will be powered for 3 minutes and will then be cycled on for 40 seconds and off for 40 seconds until the last 70 seconds of the cycle at which time it is no longer powered.

The Drain Valve is powered closed with 120VAC from the Input/Output PCB (red output light #4 on Input/Output PCB will be lit) on the brown/yellow wire.

Test with all style drives

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Fill & All Wash & Rinse Bathes

The selected Water Valves to fill the tub (hot, cold or both) are powered with 120VAC from the Input/Output PCB (red output light on Input/Output PCB will be lit) on the white/red #7 (cold) wire and/or the red/yellow #5 (hot) wire.

The two Water Valves to flush the Powdered Detergent Dispenser are powered with 120VAC from the Input/Output PCB (red output light on Input/Output PCB will be lit) on the red/orange wire #8 (Hot Water Flushes Detergent For 20 Seconds In Wash Cycle) and on the white/blue wire #6 (Cold Water Flushes Softener For 20 Seconds In Final Rinse)

As the washer fills the tub through the back of the machine with either one or both the C1 Cold and H1 Hot Water Valves, the Wash Basket will tumble one direction for 12 seconds, pause, and then reverse direction for 12 seconds. This tumbling process is accomplished with the Microprocessor signalling the Input/Output PCB which in turn sends 24VDC to the Variable Frequency Drive to operate the Drive Motor. Forward direction is powered with 24VDC from the Input/Output PCB (red output light #13 on Input/Output PCB will be lit) on the blue wire to the FW terminal on the Variable Frequency Drive. Reverse direction is powered with 24VDC from the Input/Output PCB (red output light #14 on Input/Output PCB will be lit) on the orange wire to the RV terminal on the Variable Frequency Drive.

The cycle time count down is stalled in each bath until low level is reached. The Input/Output PCB receives a 12VDC signal from the Pressure Switch (green input light #13 on Input/Output PCB will be lit) on the orange/yellow wire when low level is reached.

The EMPTY bath may be chosen for any bath including the final rinse bath. If empty bath (EE) is chosen the timer will **stop** for 40 seconds then continue as programmed. No chemical injections will be allowed because no water level reached.

Test with all style drives

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Liquid Chemical Signals

Chemical injection signals are available in all bathes. If programmed, the following numbers will provide 120 VAC signals to the designated terminals on the back of the washer. All Chemical injection signals are delayed until 30 seconds after the tub starts to fill with water. All signals are for a 10 second duration.

Display on Computer	Terminal Strip on Back of Washer
0	NO CHEMICALS
1	A
2	B
3	C
4	D
5	A & B
6	C & D
7	NOT USED

Red LED's on I/O PCB

#9	INJECT A
#10	INJECT B
#11	INJECT C
#12	INJECT D

Test with Square D type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Intermediate Extract Circuit

Intermediate speed Extract will be programmed after all bathes except the Final Rinse (see Final Extract).

If programmed for Intermediate Extract, the Microprocessor will signal the Input/Output PCB to send 24VDC (red output light #14 on Input/Output PCB will be lit) on the orange wire to the RV (reverse) terminal on the Variable Frequency Drive. This insures that the tub is turning the correct direction before starting into spin. Next, the Input/Output PCB sends 24VDC (red output light #15 on Input/Output PCB will be lit) on the green wire to the LI2 (intermediate spin) terminals on the Variable Frequency Drive.

Test with Square D type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Final Extract Circuit

Same sequence as Intermediate Extract but adds the following. The Input/Output PCB sends 24VDC (red output light #16 on Input/Output PCB will be lit) on the red and black wire to the LI1 & LI3 (final spin) terminal on the Variable Frequency Drive.

This means that all 3 terminals LI1, LI2 & LI3 are powered with 24VDC for high spin. Also red output led's # 14, #15, #16 will be on throughout programmed cycle on I/O PCB.

Test with any type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

Thermoactuator

As described in the START CIRCUIT previously the Lock Thermoactuator is powered with 120VAC from the Input/Output PCB (red output light #2 on Input/Output PCB will be lit) on the orange/blue wire. The Lock Thermoactuator will be powered for 3 minutes and will then be cycled on for 40 seconds and off for 40 seconds until the last 70 seconds of the cycle at which time it is no longer powered.

The Input/Output PCB also sends 120VAC (red output light #1 on Input/Output PCB will be lit) on the orange/red wire to the Unlock Thermoactuator 30 seconds before the end of the cycle. This is to insure that the Lock Thermoactuator has retracted by the end of the cycle allowing the door to be unlocked.

Test with any type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER & BEFORE SERIAL NUMBER #416041

End of Cycle

At the end of the cycle, the Display PCB will read 0 minutes, the Beeper will sound for 5 seconds in 1 second intervals and the End of Cycle Light will come on.

The washer door must be opened before the display resets and allows a different cycle to be selected. You can run the same cycle again without opening the door BUT you Must open to reset to another cycle NUMBER.

Please remember that the red LED lights are only a indication that the Input/ Output PCB has signaled the relay mounted on the PCB to allow an output. A output voltage reading should be taken to confirm relay operation. The green LED lights are CRITICAL input signals lights that must be working in a particular order for the CPU to function properly. The order is dependant on what is programmed, BUT IT IS IMPORTANT TO CHECK. If an input is lost or not in proper sequence a MALFUNCTION COULD OCCUR. TO START A CYCLE YOU MUST HAVE GREEN INPUT LIGHTS #14 (TUB EMPTY) , #3 (DOOR LOCK), #4 (DOOR CLOSE), #2 (RUN) AND THE #6 (START). START LIGHT #6 WILL GO OUT WHEN BUTTON NOT DEPRESSED. THE FOUR OTHER LIGHTS WILL REMAIN ON AND IF LEVEL IS PROGRAMMED TUB EMPTY #14 WILL GO OUT AND AS WATER LEVEL RISES #13 LOW LEVEL WILL COME ON.

Test with Square D type drive

55lb. OPL Computer Washer Schematic

WCN55AFHX

AFTER SERIAL NUMBER #416041

Start Circuit

Power is applied to the control trough on L1 & L2. 208 or 240 VAC goes to the Control Transformer that steps the voltage down to 120 VAC. This voltage then travels through the 1.5 amp Circuit Breaker and on to the Step Down Transformer.

The Step Down Transformer steps 120 VAC down to 12 VAC for the Input/Output PCB. The Input/Output PCB regulates 12VAC to 12 VDC to power the output relays and then down to 5 VDC to power the microprocessor.

The Variable Frequency Drive is powered by either L1 & L2 on single phase or L1, L2 & L3 on three phase. 24 VDC leaves the Drive from terminal +24 on the white wire to and through the Run Relay Contacts.

As soon as the door is locked, 12 VDC is supplied from the Input/Output PCB to the Run Relay coil and closes the relay. The Run Relay allows 24 VDC to pass through contacts to the Input/Output PCB. A 120 VAC signal powers most outputs on Input/Output PCB . A 24 VDC volt signal powers the motor control outputs.

After selecting a cycle, depressing the Start Button (green input light #6 on Input/Output PCB will be lit while button is depressed) signals the Microprocessor to begin that cycle. All signals come into the Microprocessor through the Input/Output PCB.

The door is locked by sending 120VAC from the Input/Output PCB (red output light #3 on Input/Output PCB will be lit) on the white/red wire to the Door Lock Solenoid. With the door locked a 12VDC signal is sent back to the Input/Output PCB from the Door Locked Switch on the orange/white wire (green input light #3 on Input/Output PCB will be lit).

The Lock Thermoactuator is powered with 120VAC from the Input/Output PCB (red output light #2 on Input/Output PCB will be lit) on the orange/blue wire. The Lock Thermoactuator will be powered for 3 minutes and will then be cycled on for 40 seconds and off for 40 seconds until the last 70 seconds of the cycle at which time it is no longer powered.

The Drain Valve is powered closed with 120VAC from the Input/Output PCB (red output light #4 on Input/Output PCB will be lit) on the brown/yellow wire.

DELTA VFD-A (55#) VARIABLE FREQUENCY DRIVE TROUBLESHOOTING

MACHINE OPERATION:

The Delta drive, in the 55# washer, will operate the same way as the previous Square D drive. There are three individual speeds, tumble, intermediate extract, and extract. The extract speed will depend on the individual type of 55# washer (100G, 120G, or 140G).

DELTA DRIVE CONTROL:

The Delta drive has two terminal strips that control the overall operation of the drive. We currently are using only six terminals on these two terminal strips, all of which are inputs to the drive. By using these six inputs, the speed and direction of the washer can be controlled.

The control terminal strips, and all the connection terminals, can be accessed by removing the lower front cover, which is snapped into place. It may take a great deal of pressure, either on the bottom and/or sides of the cover, to remove it from the drive.

Either a micro controller or relays supply the correct inputs to the drive. The drive will operate as it is commanded by the washer controls.

Zero volts are present on a drive control terminal when it is active. Pages 6 through 18 will show the voltages present on the control terminals, the drive display L.E.D. status, and the number displayed on the drive keypad, for each part of the 55# washer cycle.

DELTA DRIVE DISPLAY/KEYPAD:

The drive display/keypad is present on each Delta drive that is installed. While the keypad is not functional, the display is. There are two parts to the display, the seven segment area (shows actual digits) and the L.E.D. area (five red light emitting diodes).

The seven segment display area will show fault codes associated with a drive problem. These are shown on pages 4 and 5. The drive can store up to three fault codes that occur when there is a problem. Only one at a time can be displayed. As a fault is cleared, the next fault code that is stored will appear, unless it was cleared when the previous fault code was cleared.

To clear faults on the Delta drive, you must first find and correct the problem causing the fault and then cycle power to the washer. If there is another fault that still exists, you must repeat the process.

The L.E.D.s will show the present status of the drive. They indicate when a RUN, STOP, JOG, FWD (forward), and REV (reverse) control input is present.

DELTA DRIVE POWER:

Mains power is connected to terminals R, S, and T on the Delta drive. If the washer is connected to a three phase source, there should be voltage present on all three terminals. If the washer is connected to single phase power, there should be voltage present on terminals R and S.

The voltage should measure 208 Volts to 240 Volts A.C. between phases (R to S, R to T, or S to T if connected to three phase). There is a tolerance of ± 10% on the mains voltage (187 Volts to 264 Volts).

DELTA DRIVE MOTOR LEADS:

The wires from the motor are connected to terminals U, V, and W. Motor wire T2 should be connected to drive terminal U, motor wire T1 connected to drive terminal V, and motor wire T3 connected to drive terminal W.

Since this drive uses pulse width modulation, an accurate current or voltage reading is not possible. Although an accurate current reading is not possible, a balanced current reading should be present while the motor is running.

DELTA DRIVE DYNAMIC BRAKING RESISTORS:

Two, 160 Ohm braking resistors, are connected in parallel and attached to the drive at terminals B1 and B2. These resistors allow the voltage, which is generated by the motor when decelerating, to be dissipated. They will become hot while the motor is slowing down, so care should be taken so as not to come in contact with them. This will prevent an electrical shock and/or a physical burn.

DELTA DRIVE COOLING FAN:

There is a cooling fan attached to the bottom of the Delta drive. This fan will operate when the internal temperature of the drive reaches a predetermined level, the same way the radiator fan in a newer car operates. **THE FAN CAN OPERATE ANYTIME POWER IS APPLIED TO THE DRIVE!** Remove power to the drive if work is required around the fan.

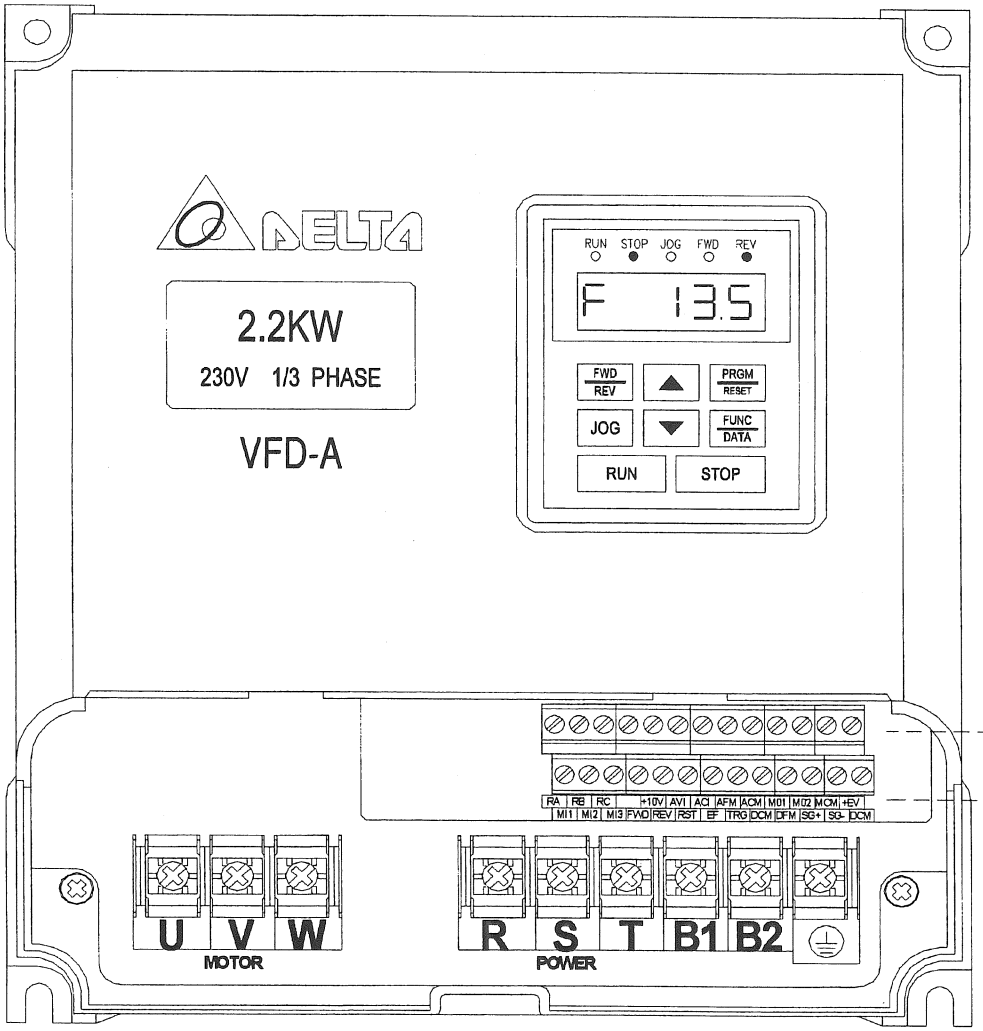
SAFETY PRECAUTION:

There is a red CHARGE L.E.D. inside the lower front cover of the drive. It is located above and to the left of the MOTOR connection terminals. This L.E.D. is on anytime dangerous voltage levels exist within the drive. Any time this L.E.D. is illuminated, dangerous voltage levels exist within the drive. **NO WORK, RELATED TO THE DELTA DRIVE, SHOULD BE PERFORMED WHEN THIS L.E.D. IS ILLUMINATED!**

Even if this CHARGE L.E.D. is not illuminated, a voltmeter should be used to check for voltage on the drive POWER, MOTOR and BRAKING RESISTOR terminals. There is always a possibility that the L.E.D. may be bad.

FAULT NAME	FAULT DESCRIPTIONS	CORRECTIVE ACTIONS
o.c.	The over-current hardware trip circuit detects an abnormal increase in current.	1) Check the wiring connections between the drive and motor for possible short circuits. 2) Check for possible excessive loading conditions at the motor - belt, bearings, cylinder or pulley obstruction, etc.....
o.u.	The drive detects that the DC bus voltage has exceeded its maximum allowable value.	1) Check the mains power to the drive to make sure it is within the correct voltage level. 2) Check for possible mains power voltage transients (spikes). 3) Check the value of the braking resistors. 4) Check the braking resistor wiring.
o.H.	The drive temperature sensor detects excessive heat.	1) Check the drive cooling fan for blade obstructions (free to spin). 2) Check drive ventilation holes for obstructi 3) Check heatsink fins for foreign objects or dirt.
L.u.	The drive detects that the D.C. bus voltage has fallen below its minimum value.	Check the incoming mains power to drive to make sure it is within the correct voltage limit.
o.L.	The drive detects excessive drive output current.	1) Check wiring between drive and motor. 2) Check for possible excessive loading conditions at the motor - belt, bearings, cylinder or pulley obstruction, etc..... 3) Check winding resistance of motor.
o.L. 1	Internal electronic overload trip-is overloaded	1) Check wiring between drive and motor. 2) Check for possible excessive loading conditions at the motor - belt, bearings, cylinder or pulley obstruction, etc..... 3) Check winding resistance of motor.

FAULT NAME	FAULT DESCRIPTIONS	CORRECTIVE ACTIONS
o.L. 2	Motor overload.	1) Check wiring between drive and motor. 2) Check for possible excessive loading conditions at the motor - belt, bearings, cylinder or pulley obstruction, etc..... 3) Check winding resistance of motor.
o.c.A.	Over-current during acceleration.	Check motor and motor wiring for possible short circuits.
o.c.d	Over-current during deceleration.	Check motor and motor wiring for possible short circuits.
o.c.n.	Over-current during steady state operation (tumble) - short circuit at motor output, or sudden increase in motor loading.	1) Check motor and motor wiring for short circuits. 2) Check for possible excessive loading conditions at the motor - belt, bearings, cylinder or pulley obstruction, etc.....
c.F. 1	Drive internal circuitry failure.	Check the incoming mains power to drive to make sure it is within the correct voltage limits.
c.F.2	Drive program has invalid data.	Check the incoming mains power to drive to make sure it is within the correct voltage limits.
G.F.F.	Ground or fuse failure.	Check motor and motor wiring for possible grounds or short circuits.
c.F.3	Drive internal circuitry is abnormal.	Measure input mains voltage to drive. If voltage is within limits, cycle power to drive and check for fault.
H.P.F.	Protection circuitry of hardware detected abnormal operation.	Cycle power to drive and check for fault.



DRIVE STATUS, AFTER WASHER CYCLE COMPLETE, WITH NO CONTROL SIGNAL FROM WASHER CONTROLS.

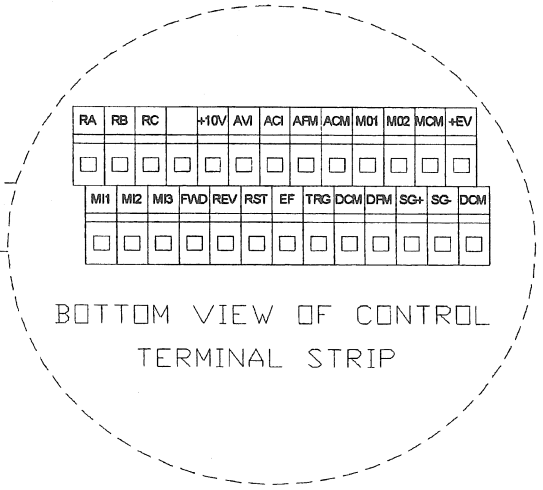
55# WASHER CONTROL TYPE: MICRO or RELAY

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

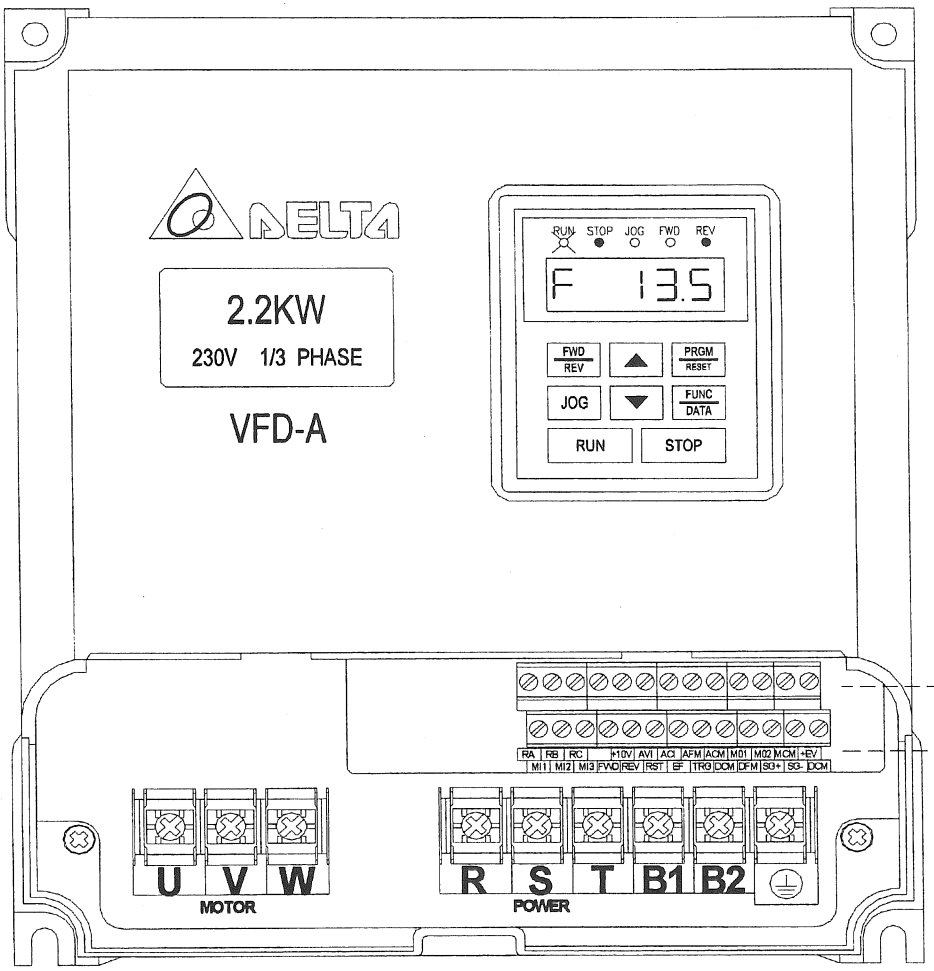
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WHILE DECELERATING FROM EXTRACT SIGNAL FROM WASHER CONTROLS.

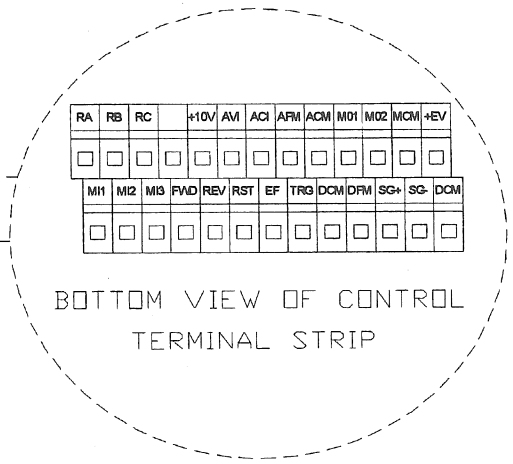
55# WASHER CONTROL TYPE: **MICRO or NON-MICRO**

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

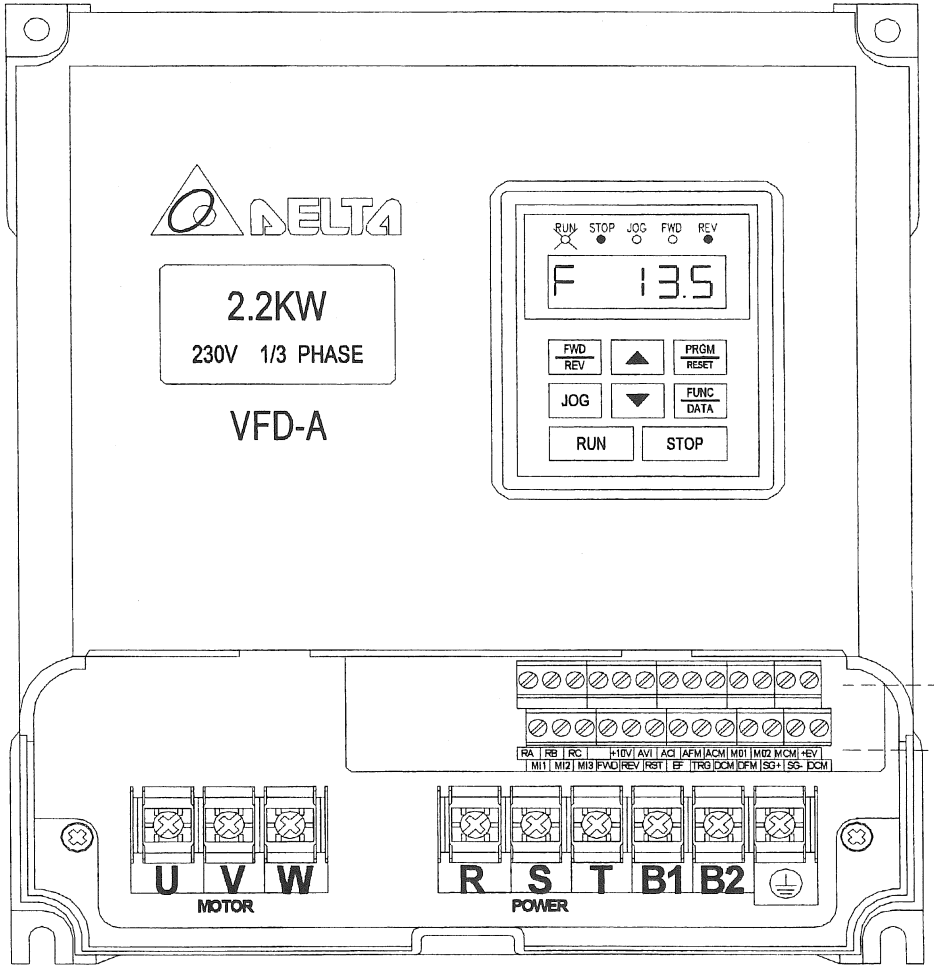
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (⊛) indicate that the L.E.D. is blinking.

VOLTAGE READINGS.

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WHILE DECELERATING FROM INTERMEDIATE EXTRACT SIGNAL FROM WASHER CONTROLS.

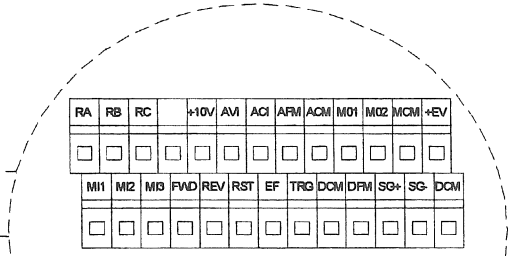
55# WASHER CONTROL TYPE: MICRO or NON-MICRO

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

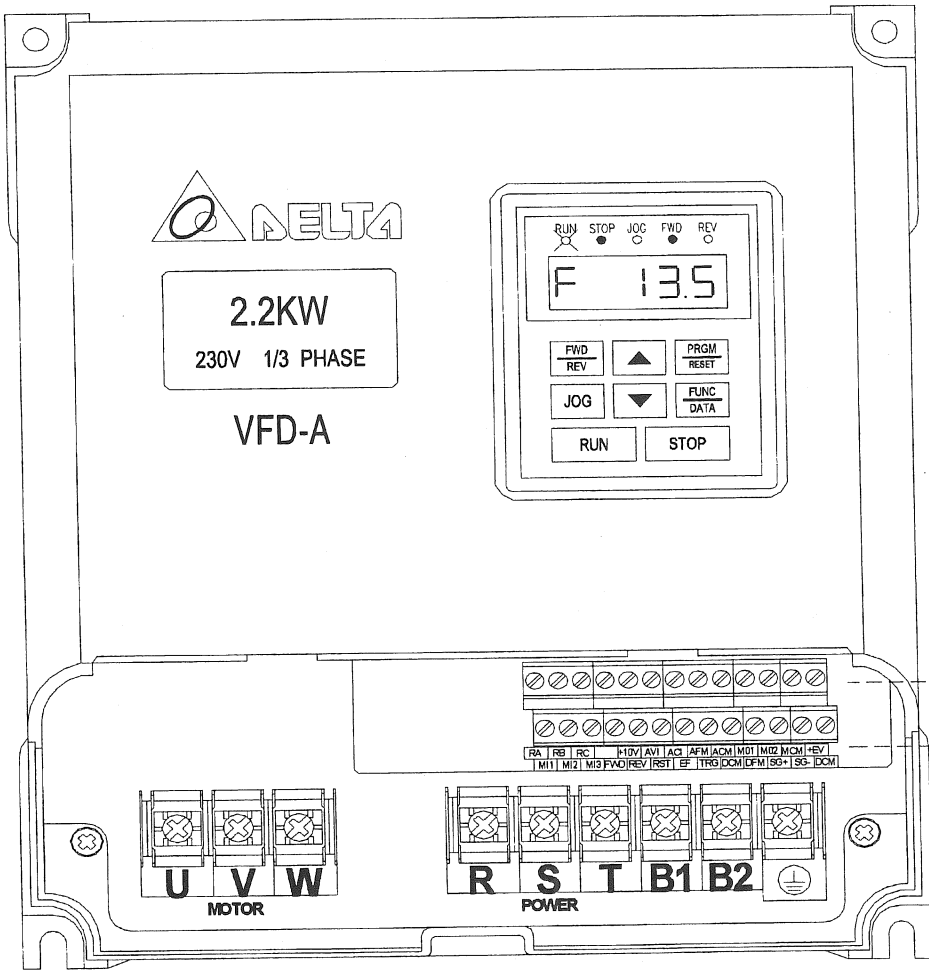
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WHILE DECELERATING FROM FORWARD TUMBLE SIGNAL FROM WASHER CONTROLS.

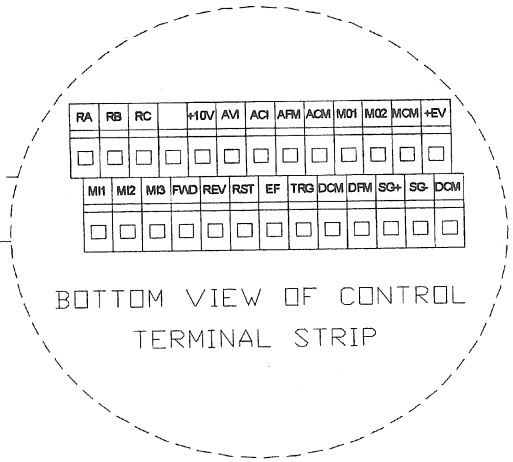
55# WASHER CONTROL TYPE: MICRO or NON-MICRO

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

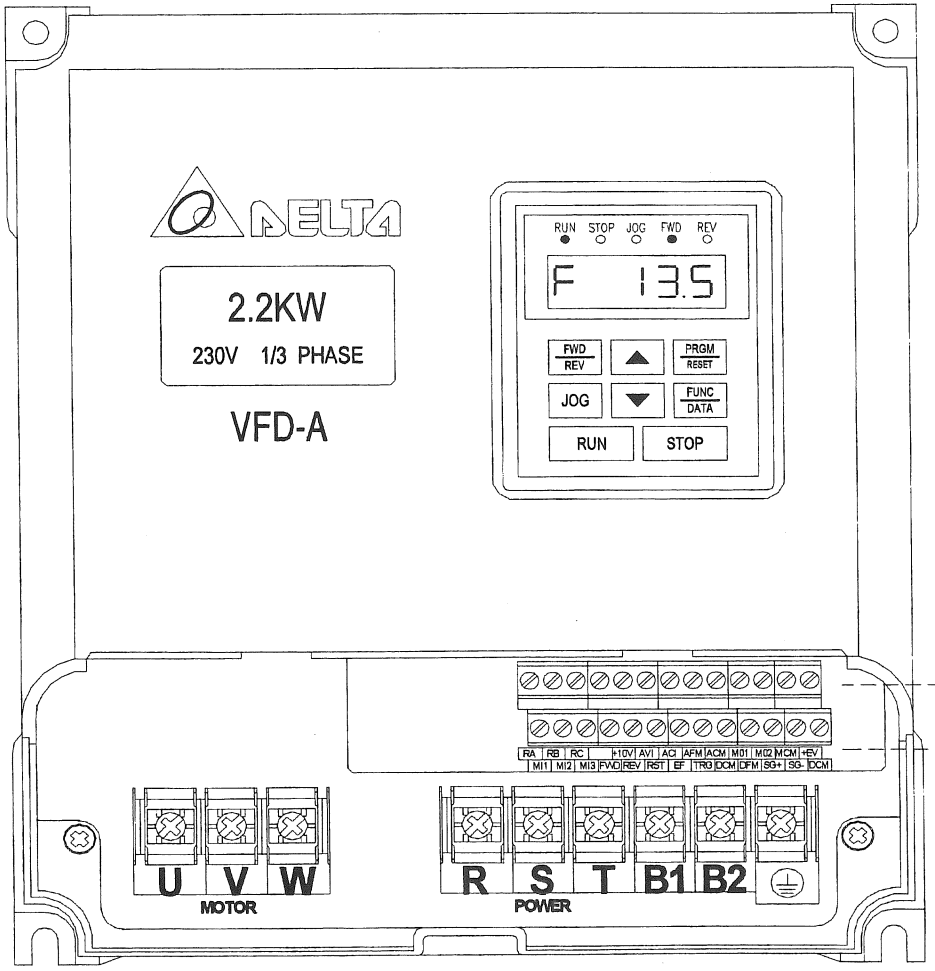
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (⊛) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WITH FORWARD TUMBLE SIGNAL FROM WASHER CONTROLS.

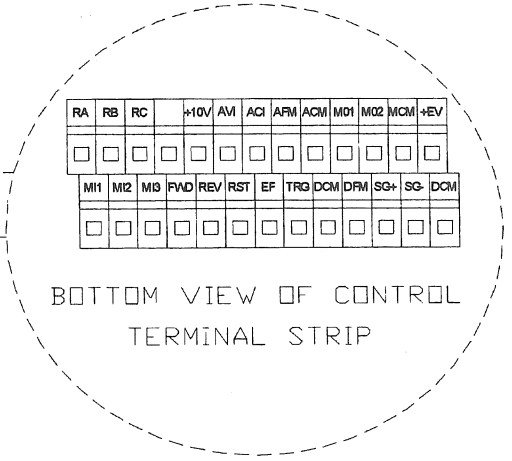
55# WASHER CONTROL TYPE: MICRO or NON-MICRO

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

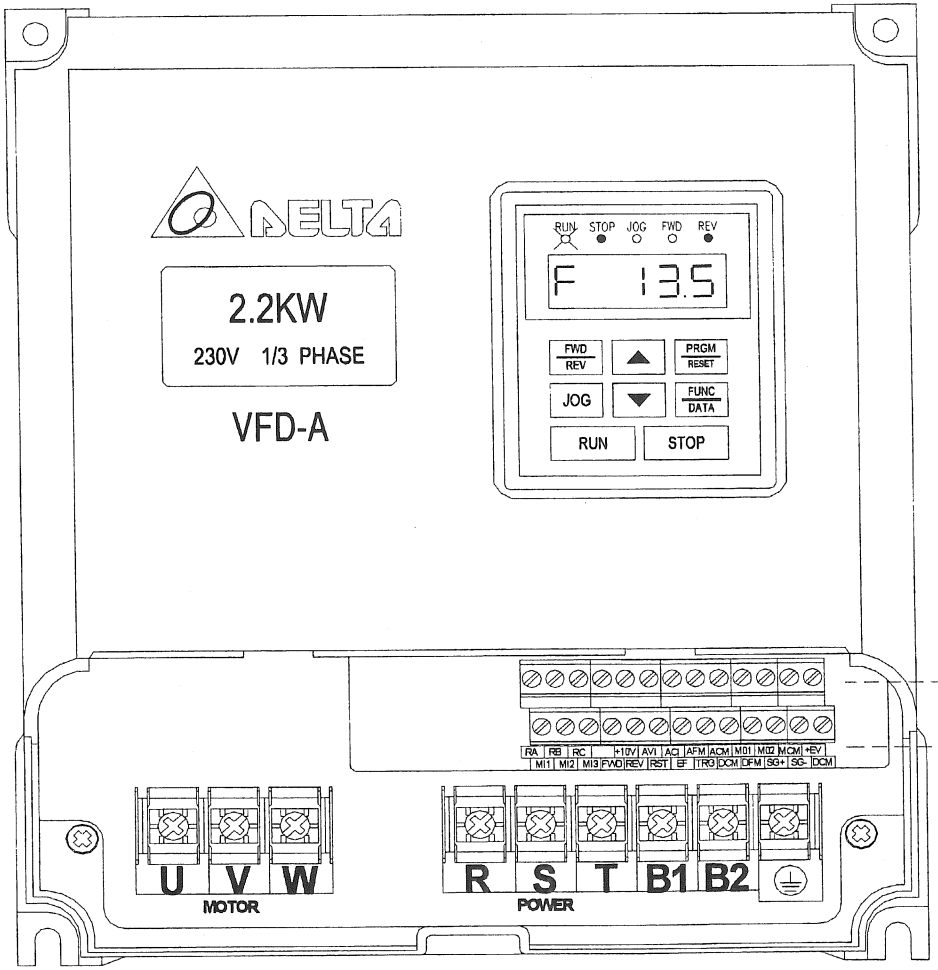
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

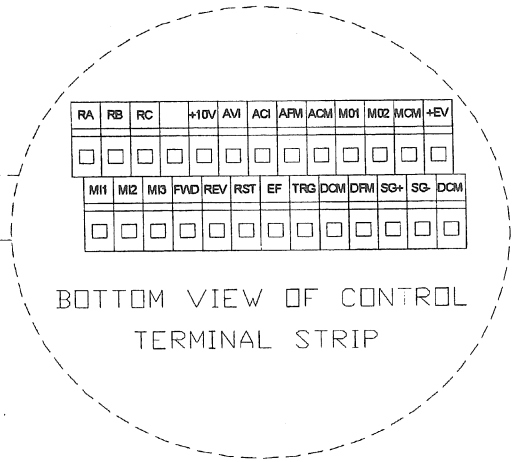
VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 0 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP





BOTTOM VIEW OF CONTROL TERMINAL STRIP

DRIVE STATUS WHILE DECELERATING FROM REVERSE TUMBLE SIGNAL FROM WASHER CONTROLS.

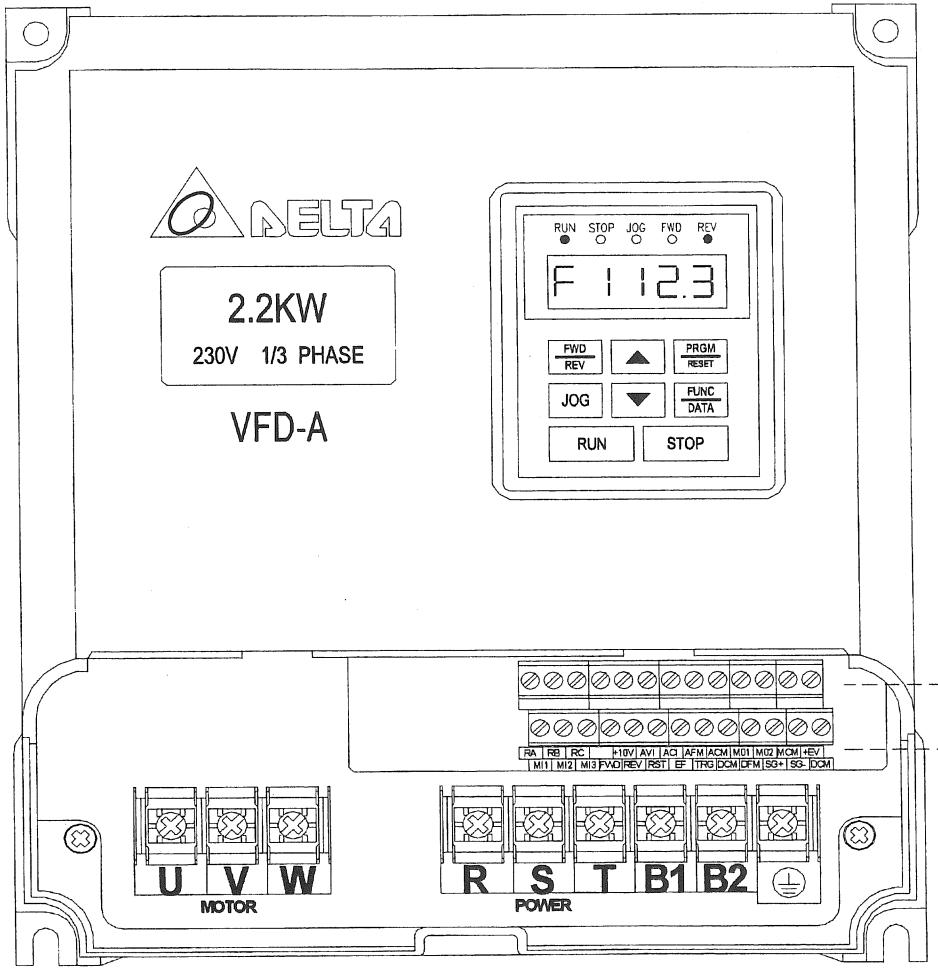
55# WASHER CONTROL TYPE: MICRO or NON-MICRO

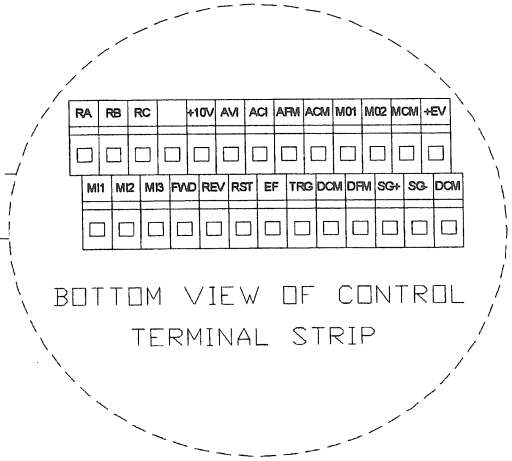
All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees ( ) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS





DRIVE STATUS WITH INTERMEDIATE EXTRACT SIGNAL FROM WASHER CONTROLS.

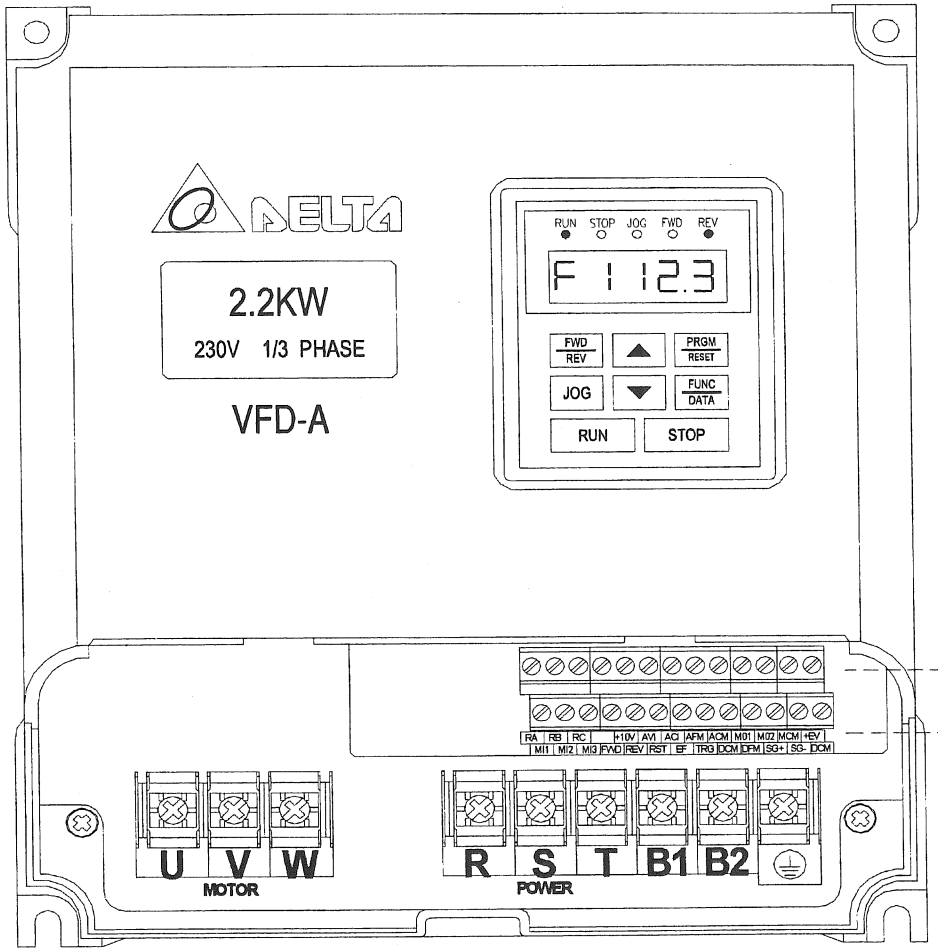
55# WASHER CONTROL TYPE: NON-MICRO (RELAY)

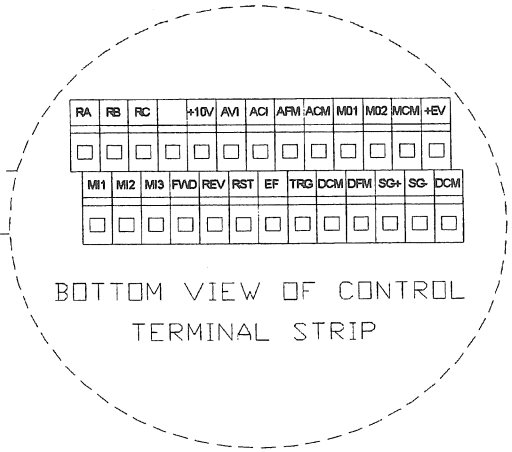
All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 0 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS





BOTTOM VIEW OF CONTROL TERMINAL STRIP

DRIVE STATUS WITH INTERMEDIATE EXTRACT SIGNAL FROM WASHER CONTROLS.

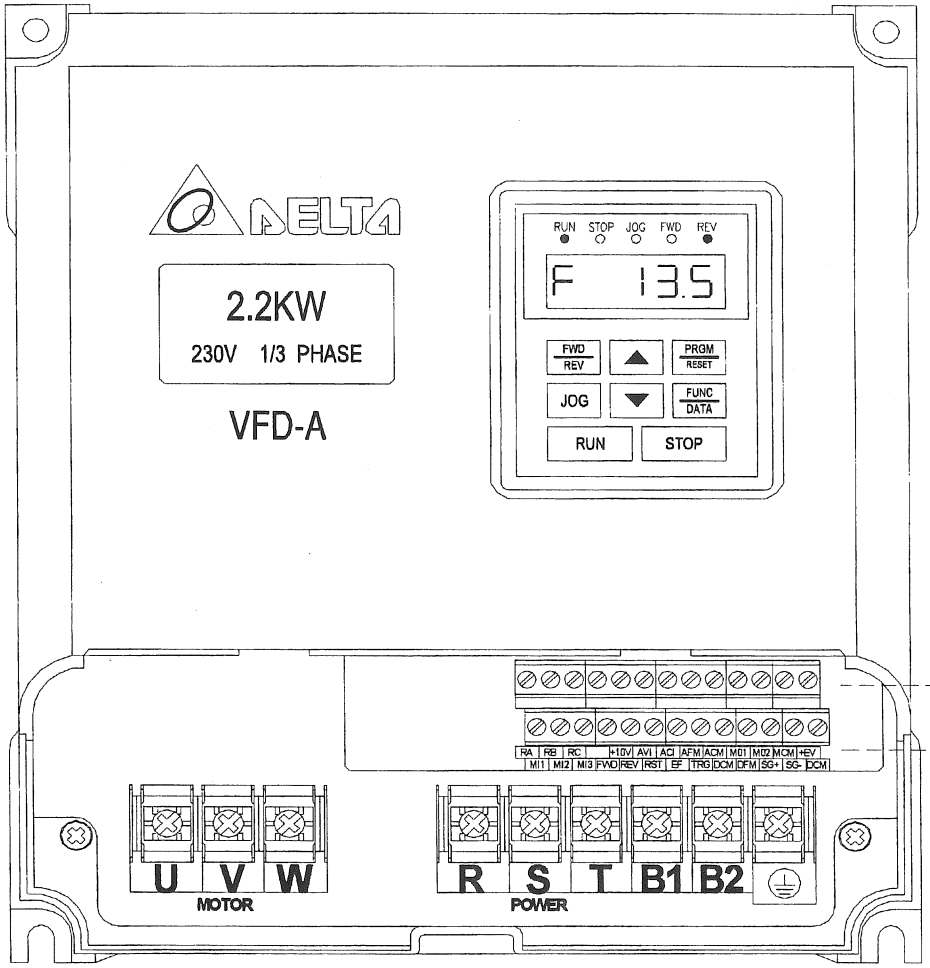
55# WASHER CONTROL TYPE: MICRO

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

Solid circles, on drive display L.E.Ds, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 0 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS



DRIVE STATUS WITH REVERSE TUMBLE SIGNAL FROM WASHER CONTROLS.

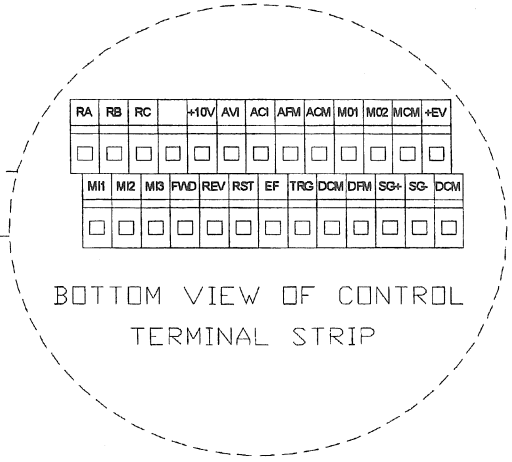
55# WASHER CONTROL TYPE: MICRO or NON-MICRO

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

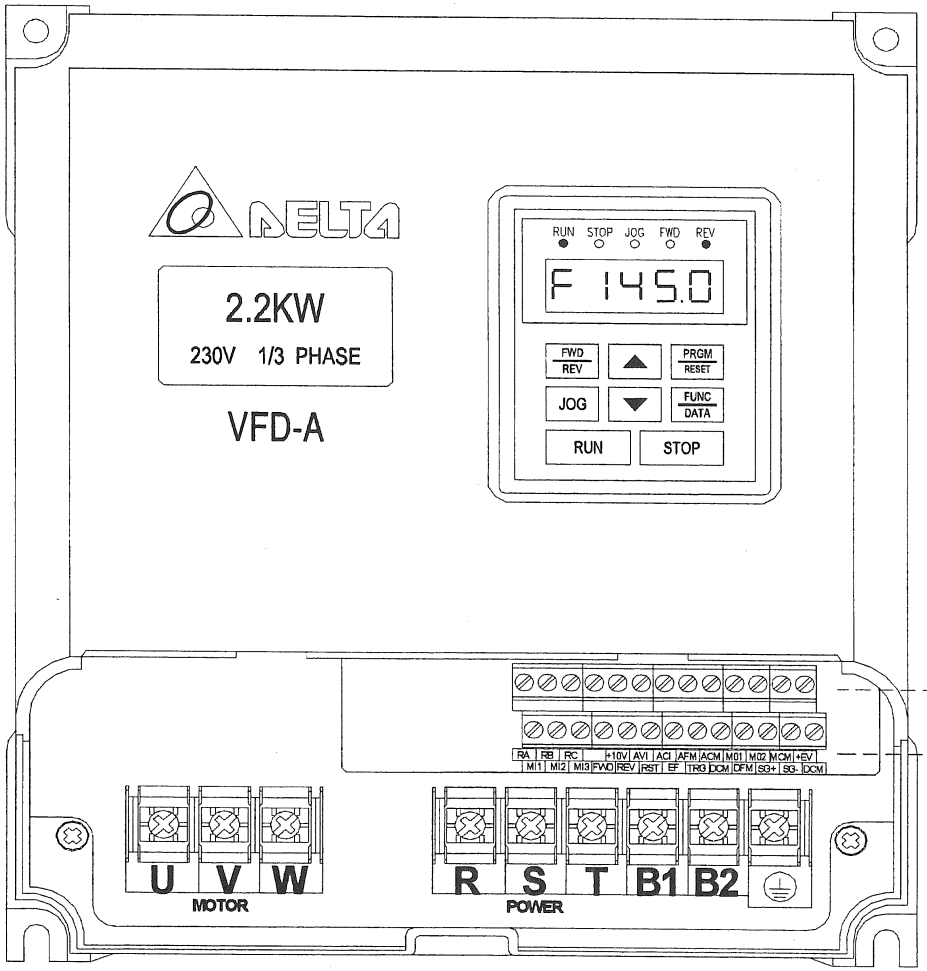
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WITH EXTRACT SIGNAL FROM **100G** WASHER CONTROLS.

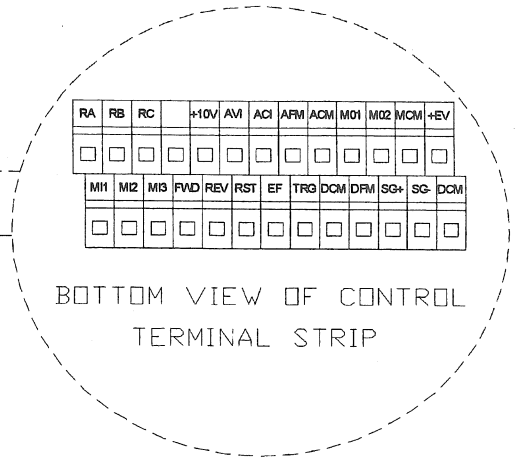
55# WASHER CONTROL TYPE: **MICRO or NON-MICRO**

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

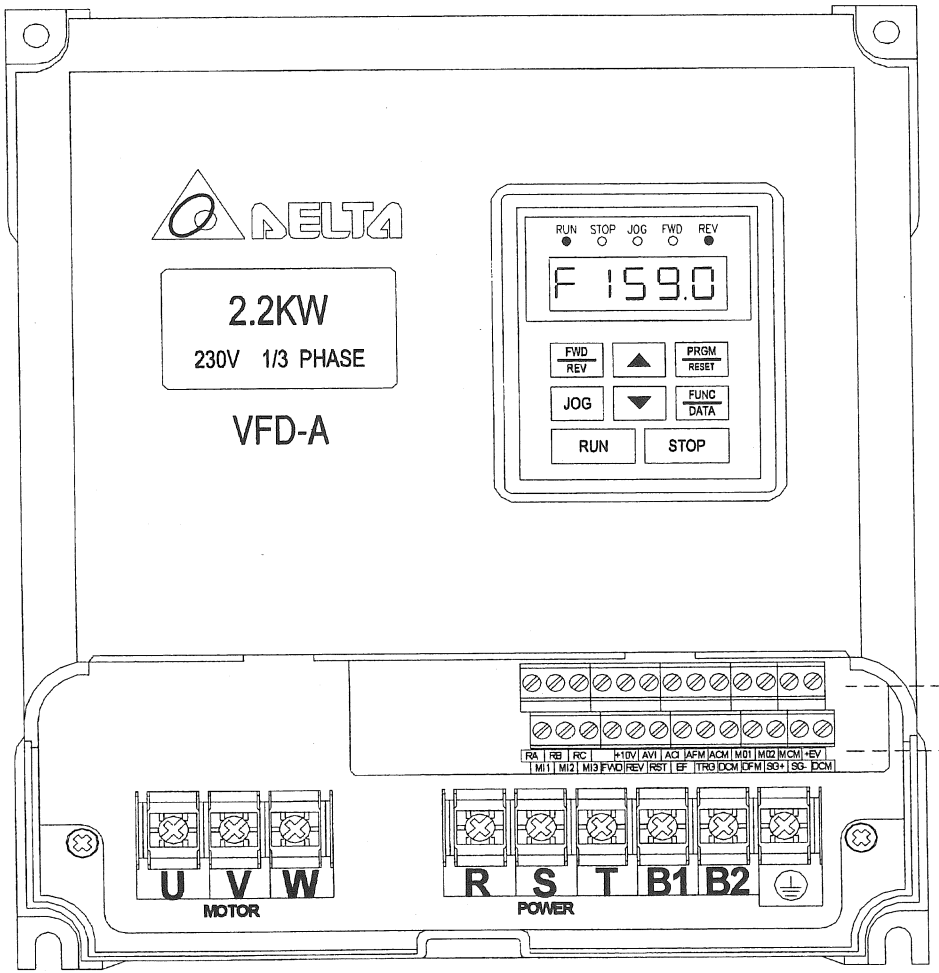
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 0 VOLTS
MI2 (BLK) TO DCM (WHT) = 0 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WITH EXTRACT SIGNAL FROM **120G** WASHER CONTROLS.

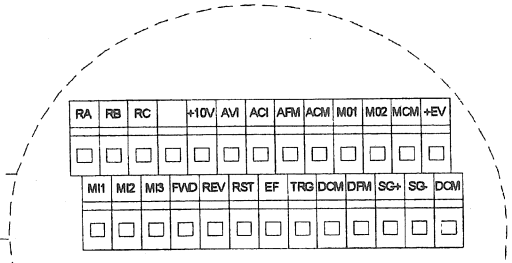
55# WASHER CONTROL TYPE: **MICRO or NON-MICRO**

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

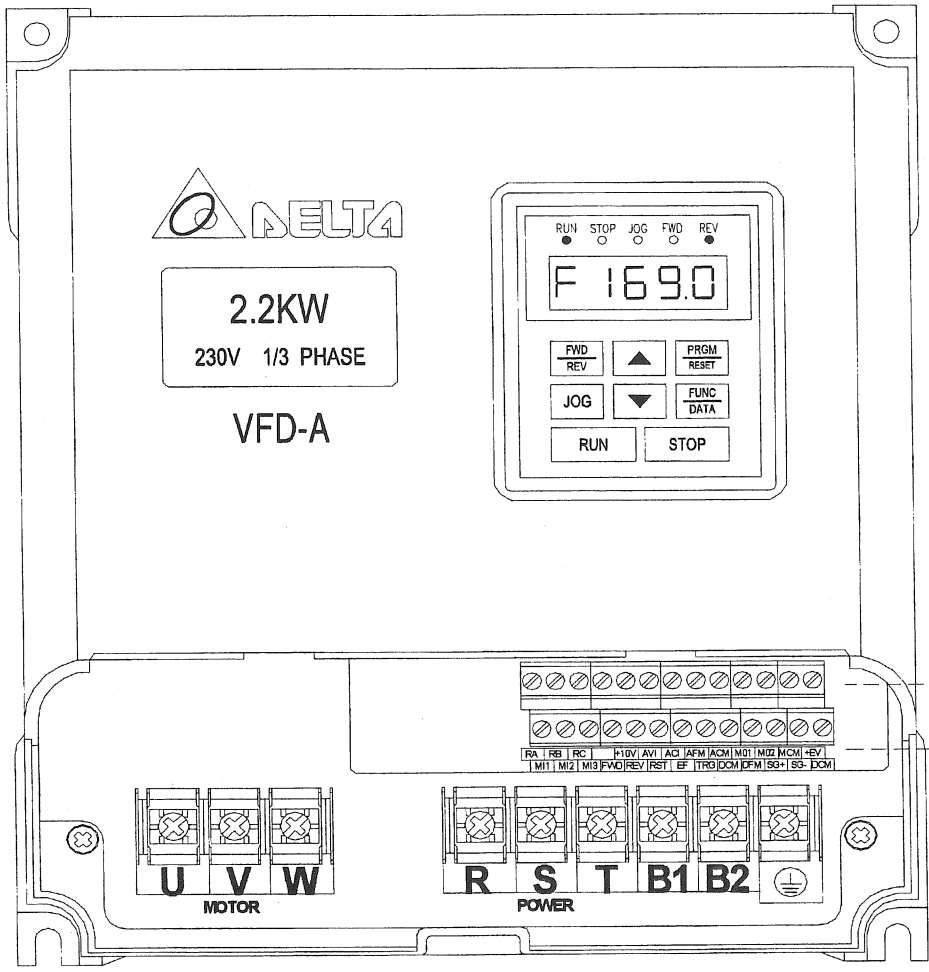
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 0 VOLTS
MI2 (BLK) TO DCM (WHT) = 0 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS WITH EXTRACT SIGNAL FROM **140G** WASHER CONTROLS.

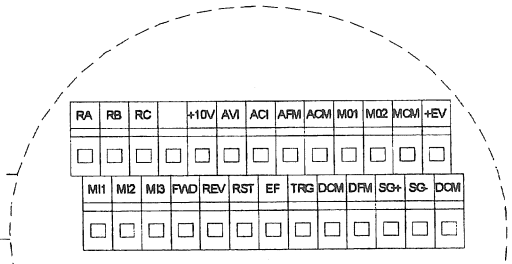
55# WASHER CONTROL TYPE: **MICRO or NON-MICRO**

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts.

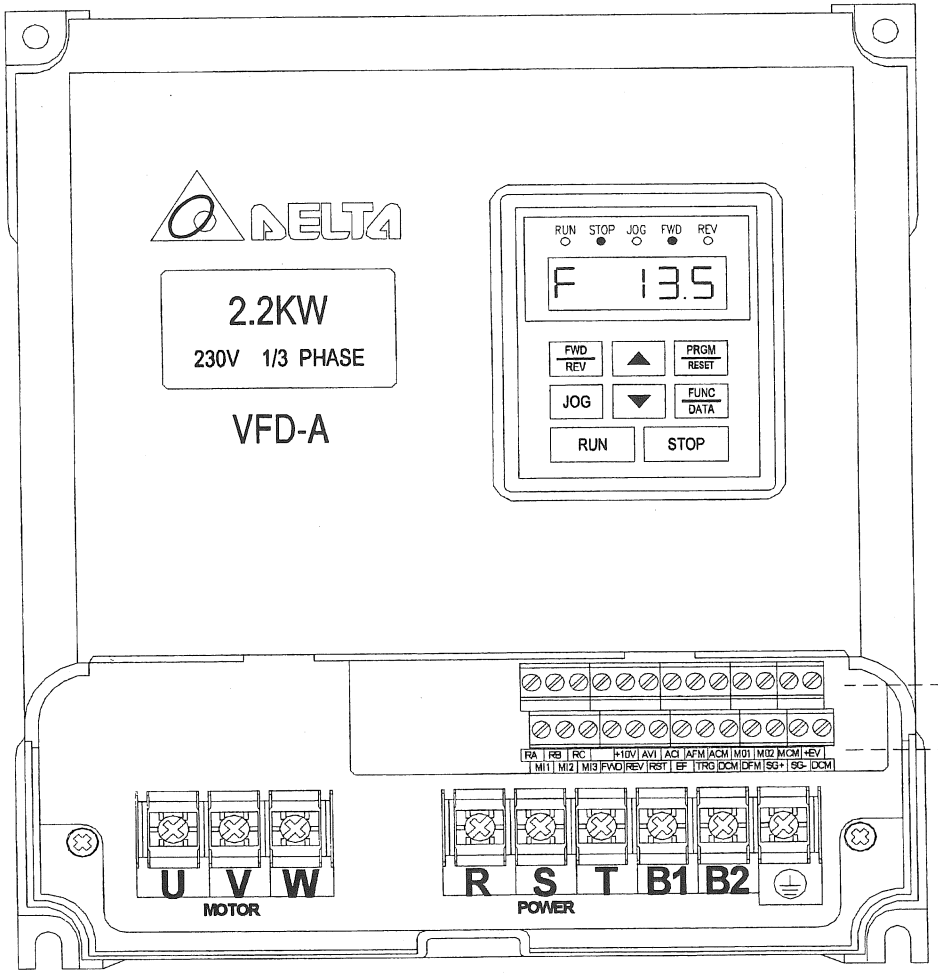
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 0 VOLTS
MI2 (BLK) TO DCM (WHT) = 0 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP



DRIVE STATUS, AFTER POWER APPLIED, WITH NO CONTROL SIGNAL FROM WASHER CONTROLS.

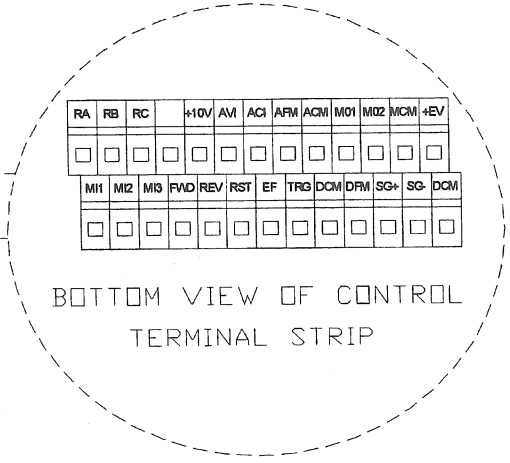
55# WASHER CONTROL TYPE: MICRO or RELAY

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C supply, of the drive, will vary from +20 to +24 Volts.

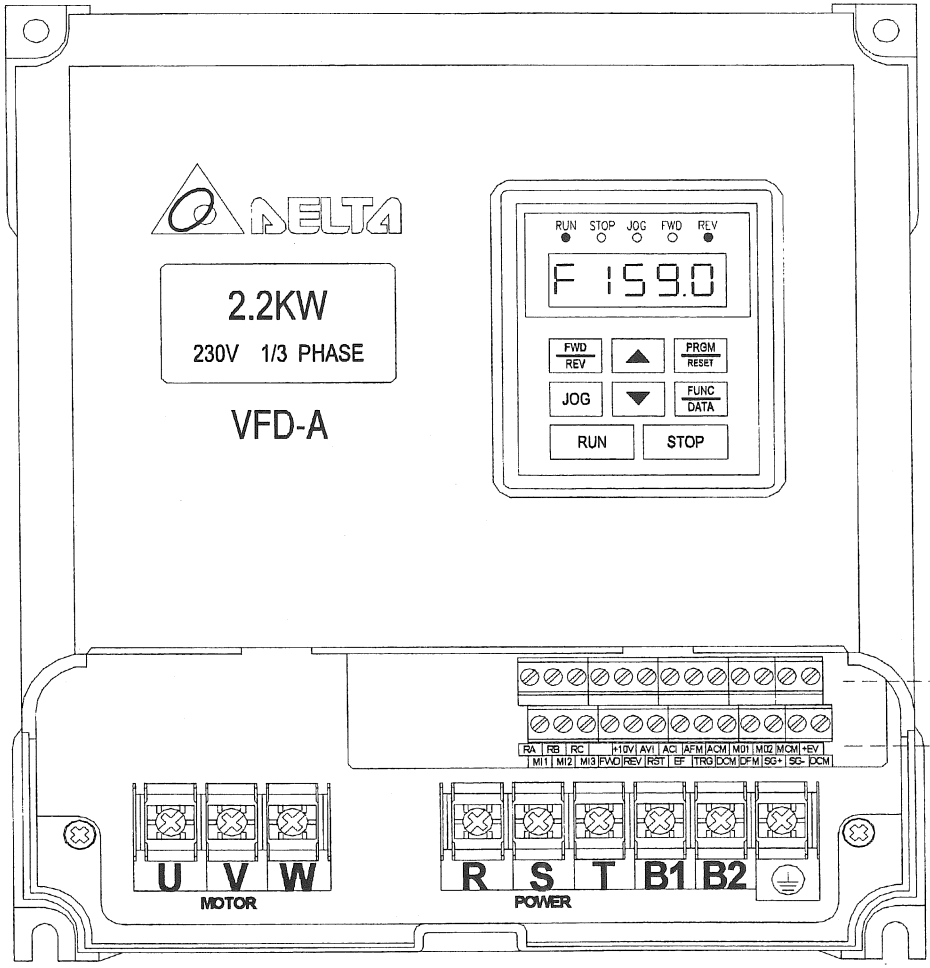
Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (✳) indicate that the L.E.D. is blinking.

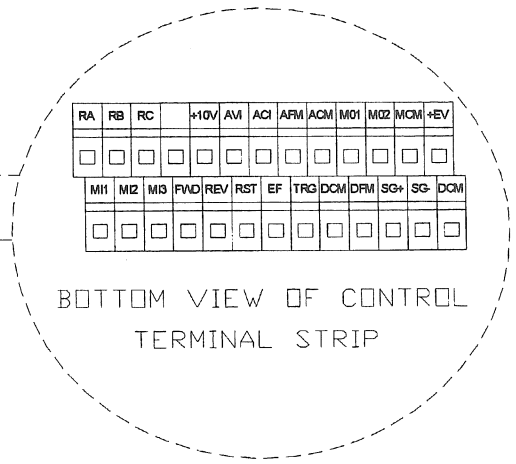
VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 24 VOLTS
MI2 (BLK) TO DCM (WHT) = 24 VOLTS
MI3 (RED) TO DCM (WHT) = 24 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 24 VOLTS



BOTTOM VIEW OF CONTROL TERMINAL STRIP





DRIVE STATUS WITH EXTRACT SIGNAL FROM **120G** WASHER CONTROLS.

55# WASHER CONTROL TYPE: **MICRO or NON-MICRO**

All control terminal voltages will be D.C. The negative lead of the voltmeter should be placed on terminal DCM. The D.C. supply, of the drive, will vary from +20 to +24 Volts

Solid circles, on drive display L.E.D.s, indicate that the L.E.D. is illuminated. Circles with four lines protruding at 45, 135, 225, and 315 degrees (⊛) indicate that the L.E.D. is blinking.

VOLTAGE READINGS:

MI1 (GRN) TO DCM (WHT) = 0 VOLTS
MI2 (BLK) TO DCM (WHT) = 0 VOLTS
MI3 (RED) TO DCM (WHT) = 0 VOLTS
FWD (BLU) TO DCM (WHT) = 24 VOLTS
REV (ORN) TO DCM (WHT) = 0 VOLTS

Section 4
Service Procedures

Before performing any service work, remove electrical power from the machine.
Always replace panels before putting machine into service.

Top Panel Removal

A. Remove 4 screws that hold detergent dispenser to top panel.
B. Unlock top panel lock.
C. Raise top panel, slide to the rear to release from back clips and lift off.

Detergent Dispenser

Remove top panel to access dispenser. (see Removing Top Panel)
Detergent is flushed from the front of the compartment and fabric softener is flushed from the back. There will be a small amount of water left in the fabric softener compartment after each use. This is normal.

Vacuum Breaker

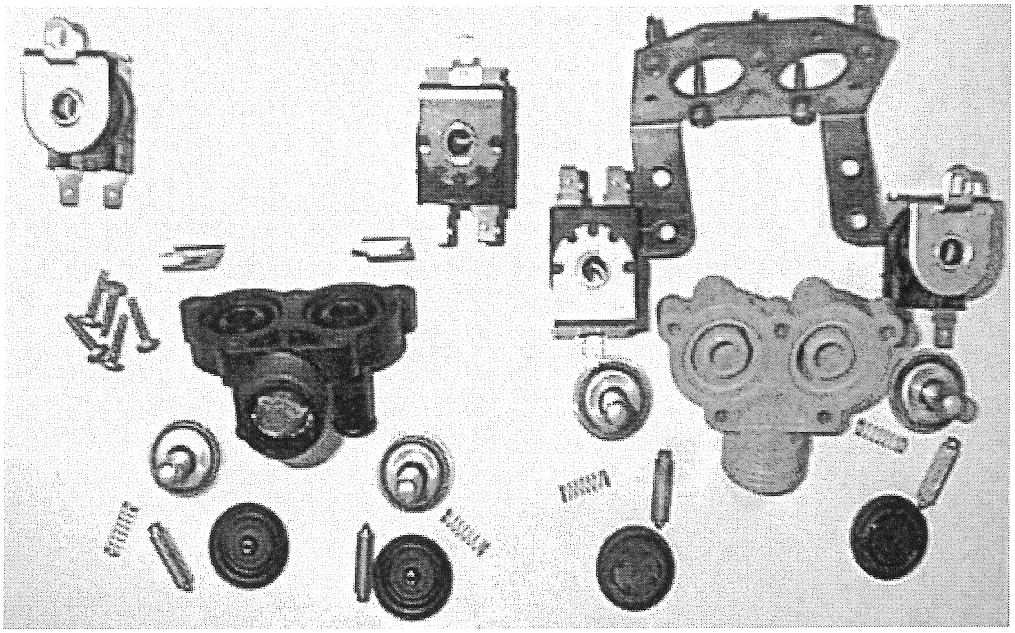
In the left rear of the cabinet is the vacuum breaker. It guides the water to the tub and dispenser and prevents a back flow of water.

Chemical Injection Assembly

In the left rear corner of the washer is the chemical injection assembly. This is where all chemical hose connections are made.

Water Valves

Remove top panel to access water valves. (see Removing Top Panel) The two dual outlet water valves are mounted to the rear channel with two screws each. The hot water valve is black in color designating that it is for higher temperature hot water. The cold valve is blue in color designating that it is for lower temperature cold water. Always check inlet screens to be sure that they are clean. Disassembly requires the removal of two solenoid screws and three valve body screws. Below the solenoid coil is a solenoid guide, armature, armature spring and diaphragm. All valve parts are available individually or as a complete unit.



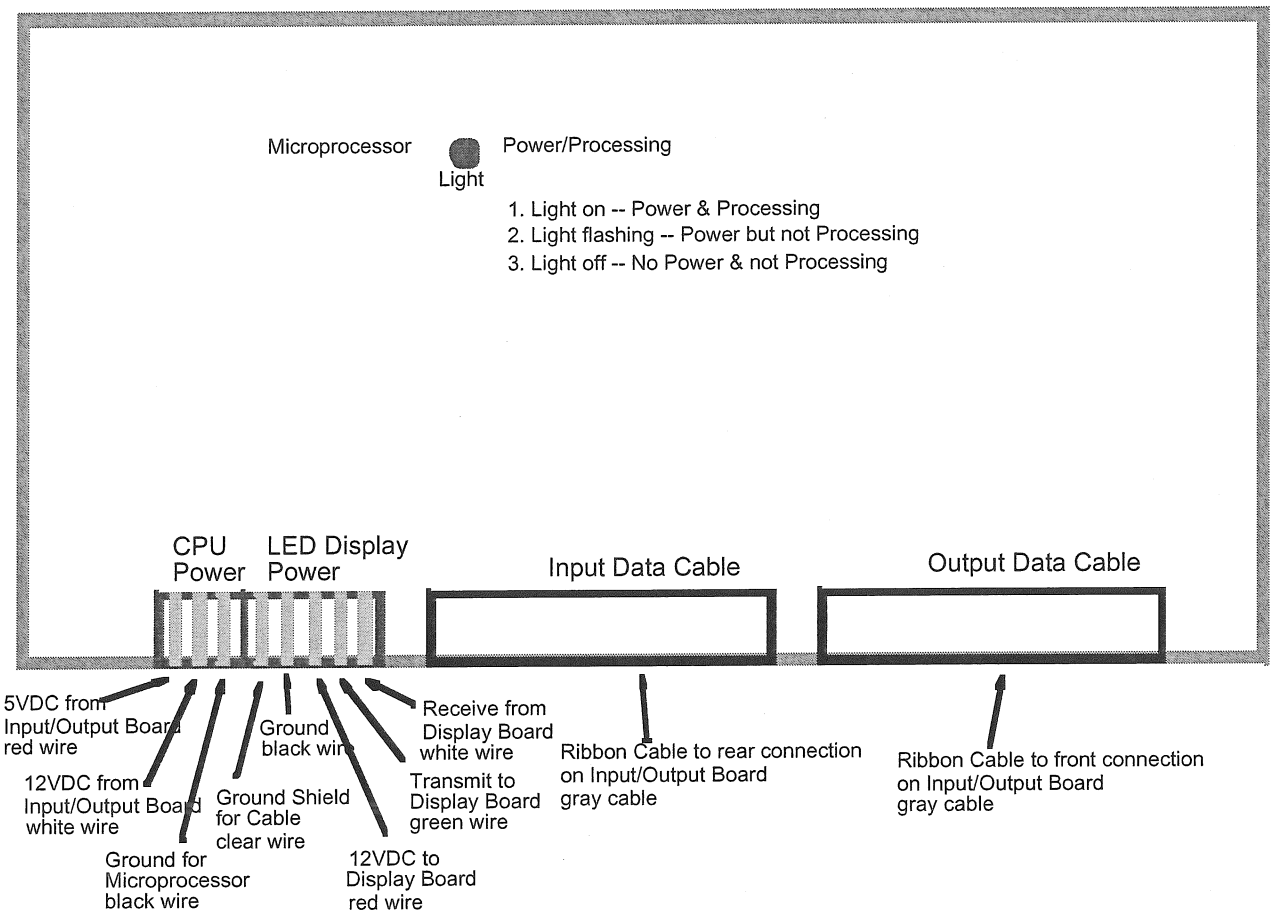
Microprocessor

The microprocessor is mounted vertically on the right side of the control trough. It controls all washer functions and is held in place with 4 screws. There are 4 wiring connectors on the board for incoming and outgoing signals. **See Microprocessor drawing below for exact locations.**
The single red light on the board shows if the microprocessor has power and if it is processing data. As shown in the drawing below, the light should be on steady any time the washer has power to it.
If the red light is flashing, the microprocessor has stopped processing data. Remove power from the machine for 2 minutes to reset board. Repower the washer and check the light to see if it is on steady.
If the light is off, there is no power to the board.

Display Board

This board is mounted on the back of the control panel. It receives inputs from the microprocessor to operate the cycle and programming indicator lights as well as the display.
See LED Display Power Connection on Microprocessor drawing.

Microprocessor



Input/Output Board

This board is mounted in the bottom of the control trough. It receives inputs from the microprocessor as well as the door lock switch, pressure switch, run/program key switch and membrane switch. The inputs for the pressure switch, membrane switch, door lock switch and run/program key switch all have green lights on the board to signal when there is an input coming in. The Input/Output board also controls all outputs. The outputs have red lights on the board to signal when the outputs are on. All Outputs are 120VAC except the five that go to the variable frequency drive. These five outputs are 24VDC.

See Input/Output Board drawing on next page.

Run Relay

The R1 Run Relay is mounted directly behind the Input/Output Board. The 12 VDC coil on the Run Relay is energized any time that the Input/Output Board receives a signal showing that the door is closed. When energized, the Run Relay provides 115VAC and 24VDC into the Input/Output Board to power all of the outputs.

Membrane Switch

This switch (touch pad) is mounted on the control panel and sends an individual 12VDC signal to the Input/Output Board for each of the 4 buttons as they are depressed. Each of the 4 buttons has a green light on the Input/Output Board that will light when the button is depressed.

Circuit Breaker

The circuit breaker mounts to the rear channel. It protects all of the controls in the machine but does not include the motor. To reset the circuit breaker just push in the button.

Control Mounting Trough

Remove top panel to access control trough. (see Removing Top Panel) It sets on the right side of the machine and holds many of the controls.

Controls Transformer

This transformer is mounted at the back of the control trough and steps a range of 208 to 240 volts down to 115 volts for the controls. There are two terminals on the controls transformer for incoming power. One terminal is for 208 to 220 volts and the other is for 221 to 240 volts.

> **Note: All 60 Hz. 55lb. washers have a controls transformer. Always check the incoming voltage and use the appropriate transformer terminal when installing these washers.**

Pressure Switch (Dual Level)

The pressure switch sets the water level in the washer and is located in the right rear corner of the control trough. As the water level rises, it compresses the air in the pressure switch hose. When the washer reaches the desired water level, the compressed air in the pressure switch hose opens the contacts in the switch, shutting off the water. When at the empty level, the pressure switch contacts are closed allowing the machine to either spin or fill with water. At low level the water will be approximately 1/2" up from the bottom of the door glass. On high level the water will be approximately 3-4" up from the bottom of the door. The pressure switch is sealed and is not adjustable.

Power Connection Terminal Blocks

These terminal blocks set in the right rear corner of the washer and are accessed from the back. Incoming power to the washer and all electrical signals for chemicals should connect here. (see Electrical under Installation and Operation Section for exact connections)

Lower Service Panel Removal

Remove 2 screws and pull forward to disengage from the locator studs.

Drain Valve

The drain valve is a ball type and is powered closed by the drain valve motor. It is mounted under the washer tub on the left side. It is spring loaded open. If power is interrupted to the washer, the motor releases the sealing ball, allowing the drive spring to open the valve. With the valve open, all water in the washer will drain out.

Service

For access to drain valve, remove lower service panel.

Cleaning

A. Loosen the clamp on the tub hose at the drain valve end and remove the hose from the drain valve.
B. Loosen the drain hose clamp on the back of the drain valve.
C. Remove two drain valve mounting bracket screws from the frame of the washer.
D. Remove the drain valve and bracket assembly.
E. Unplug the wiring after the drain valve is removed from the washer.

Front Panel Removal

A. Remove 2 screws between front panel top and front channel (located behind control panel).
B. Remove the two screws in the middle of the front panel.
C. Pull panel out at the bottom to about a 45 degree angle to detach the top lip and remove.

Masking Ring (door lock cover) Removal

A. Remove front panel.
B. Remove nuts that retain masking ring.
C. Move it to the left and off.

Door Locking Solenoid

The door locking solenoid is powered shut with control voltage to lock the door and releases when voltage is removed. It is located in the left front corner of the washer.

Thermoactuators

The thermoactuators are a safety device that keeps the door from immediately unlocking if power is lost while the machine is operating. They are mounted under the door locking solenoid.

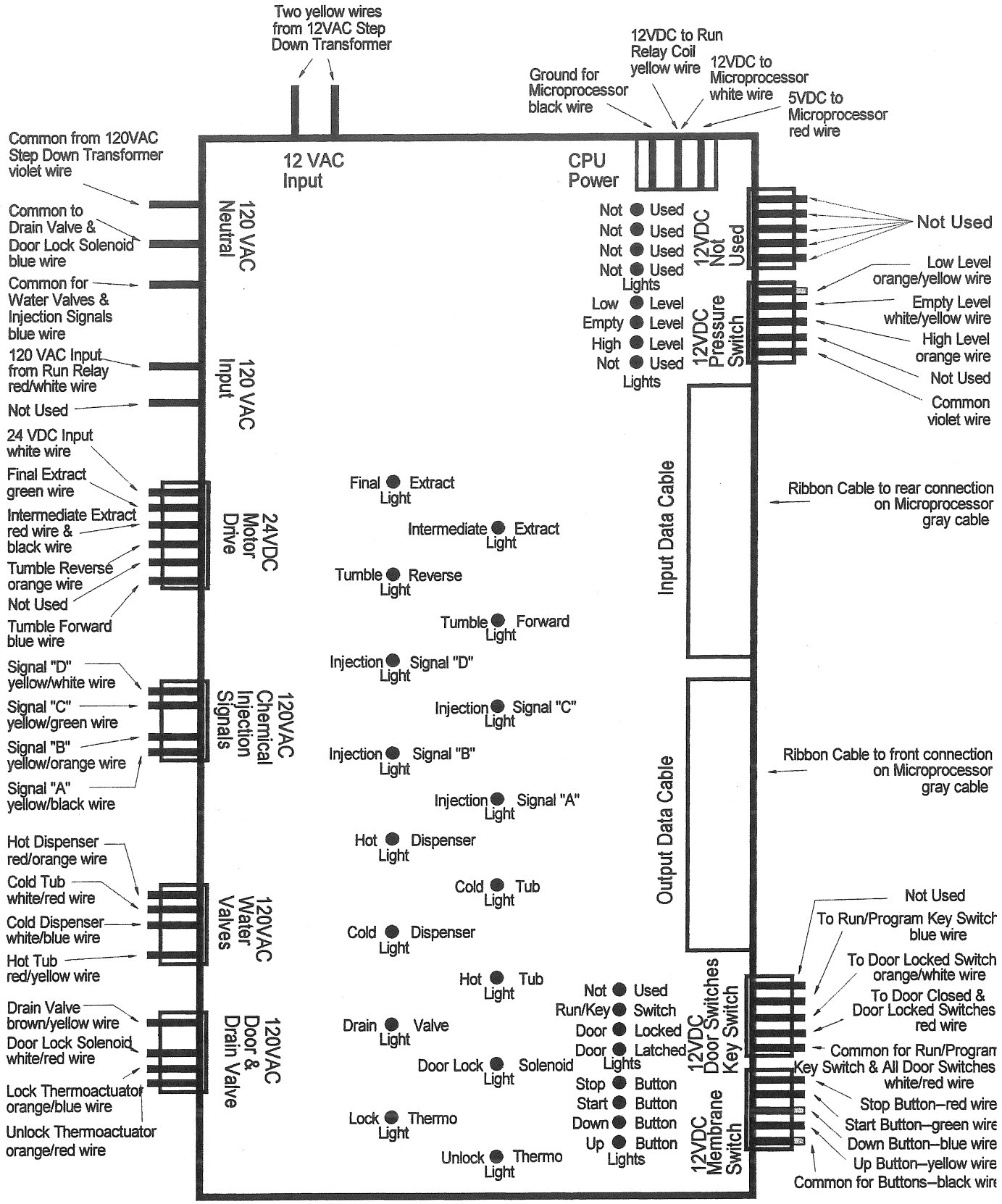
Lock Thermoactuator

Control voltage is applied to the lock thermoactuator at the beginning of the cycle making it extend and block the door locking solenoid. This keeps the door locked for approximately two minutes after a power failure occurs. The lock thermoactuator does not delay the door opening at the end of a normal cycle.

Unlock Thermoactuator

To insure that the lock thermoactuator has retracted by the end of the cycle, 30 seconds prior to the end of the cycle, the unlock thermoactuator is powered with control voltage making it extend and unblock the door locking solenoid.

Input/Output Board



Loading Door Removal

A. Support door to prevent dropping.
B. Remove 3 bolts holding hinge retainer and set door off.

Loading Door Disassembly

A. Remove the loading door as outlined above.
B. Lay the door on a flat surface with the glass down.
C. While holding down on the door glass, lift up on the door ring and roll back the lip of the gasket with your fingers.
D. Work all the way around the gasket and the glass is out.

Loading Door Reassembly

A. Lay the door ring face down on a flat surface.
B. Start the glass into one side of the door gasket.
C. Use one hand underneath to push the gasket out and the other hand on the top pulling the gasket in place.
D. The front lip of the door gasket should be checked for proper seating.

Loading Door Adjustment

The door can be adjusted by changing the number of shims behind the door hinge and the door lock assembly. **The vertical fit of the door to the tub can be altered by loosening the door hinge bolts and raising** or lowering the door before retightening. It is important for the door to be centered on the tub front. By chalking the nose of the tub and closing the door to transfer that line to the gasket, the centering can be evaluated. It is also important for door pressure to be similar around the door perimeter. Door pressure can be evaluated by inserting a dollar bill in several positions and tugging on it. See Parts Section for kit to increase door sealing pressure.

Loading Door Hinge Removal

A. First remove loading door, front panel, and trim ring.
B. Remove 3 screws holding door hinge. Shims may be present between hinge and tub front. The number may be increased or decreased to adjust right side door pressure.

NOTE: Door hinge mounting bolts penetrate tub front and require silicone sealer applied to holes when reinstalling.

Back Panel Removal

A. Remove all screws holding back panel in position except the bottom row.
B. The bottom row of screws are slotted and only need to be loosened and the panel will lift off.

Note: The back panel is not only a safety requirement but also contributes to the rigidity of the cabinet.

Drive Belt Removal

Turn the drive belts off the basket pulley first and then remove from the motor pulley.
Reverse this procedure for installation.

DOOR LOCK ASSEMBLY

OPERATION

After loading the clothing, the door should be closed and latched. The locking cam on the door contacts the latching switch actuator which closes the latching switch. Start the washer. The solenoid pulls up on the locking pawl by use of a linkage rod. The locking pawl has two jobs. The first is to lock the door. This is accomplished by blocking the locking cam on the door so that it can't rotate to unlock. The second job is to close the two piggyback lock sensing switches. These switches control power to all of the controls. If the door unlocks for any reason, these two switches will stop the machine. When the door handle is 1/4 to 1/2 of an inch from its fully closed position, the latching switch should close. The two piggyback lock sensing switches should be open when the door is unlocked and should be closed when the door is locked.

ADJUSTMENT

The latching switch and the piggyback lock sensing switches all have slotted mountings for easy adjustment.

1. Set door cam over pin.
2. Tighten spring screw on switch actuator arm until it just clears cam OD. (Note : Spring screw will have approx. 1/8" thread exposed at end beyond nut.)
3. Set .040 thickness gage between arm and latch switch operator.
4. Swivel switch until it clicks closed. Back it up just until it clicks for a reset. Tighten in that position. Check again for close and rest with gage in place. Remove gage.
5. Check for switch actuation at partial turn of cam as in operation above.
6. Check that lock arm swings by cam lobe to lock position when switch just clicks.

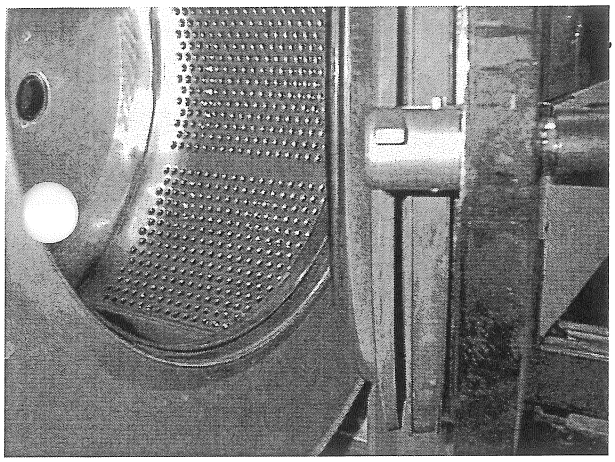
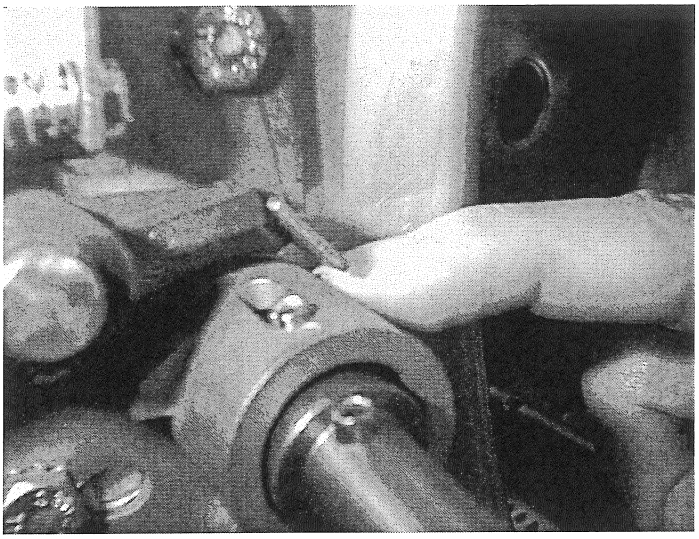


PHOTO # 1 SHOWS THE DOOR CAM AWAY FROM DOOR LOCK ASSEMBLY

PHOTO # 2
SHOWS WHERE YOU WANT CLEARANCE



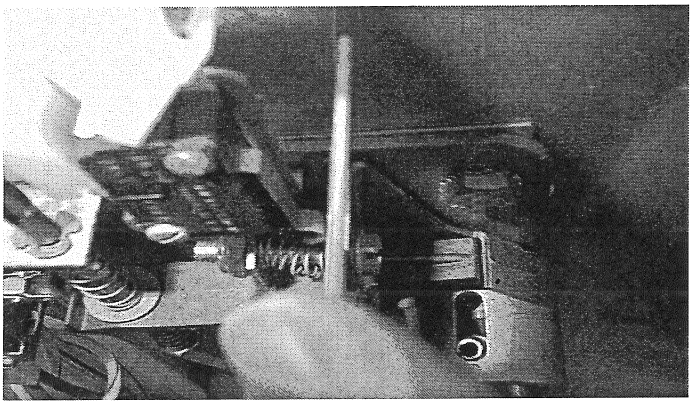
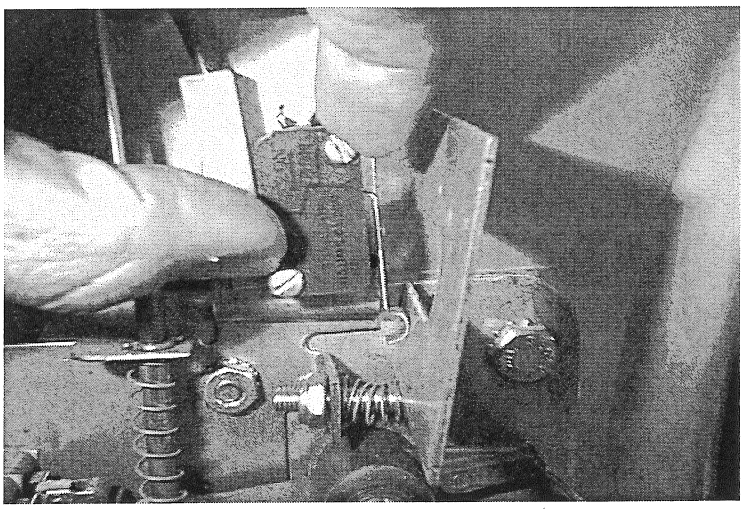


PHOTO # 3 SHOWS GUAGE IN PLACE FOR ADJUSTMENT

PHOTO #4
SHOWS SWITCH SWIVELLING FOR ADJUSTMENT WITH GUAGE IN.



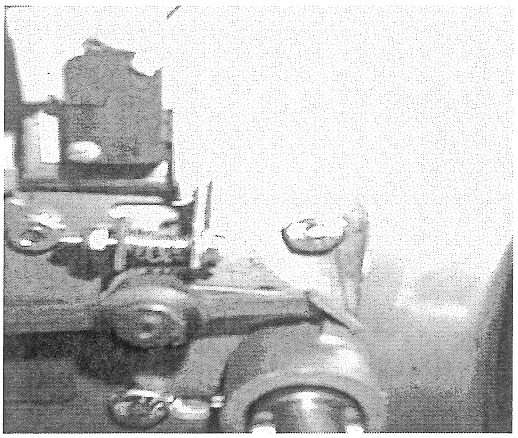
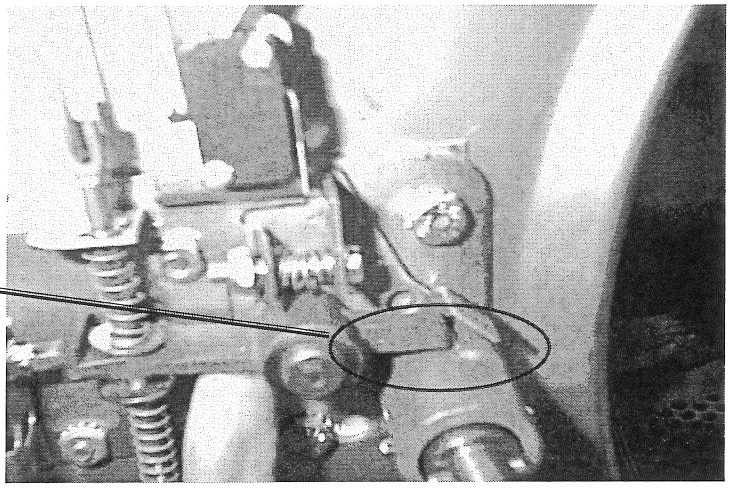


PHOTO # 5 SHOWS AREA WHERE CONTACT SHOULD BE MADE.

PHOTO # 6
SHOWS LOCK ARM ENGAGED



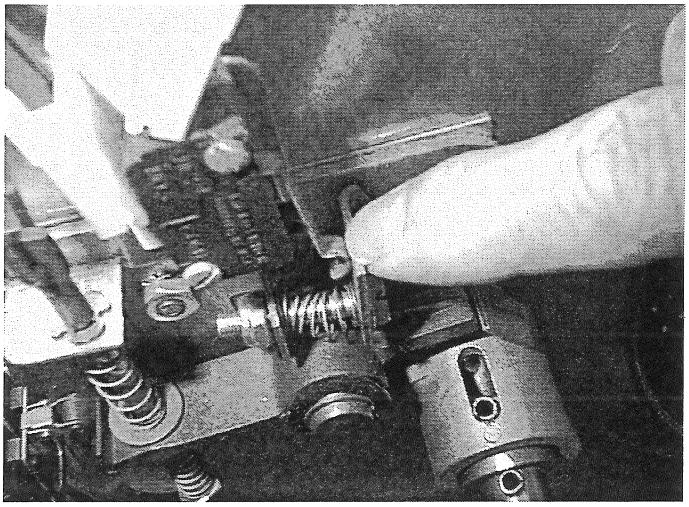
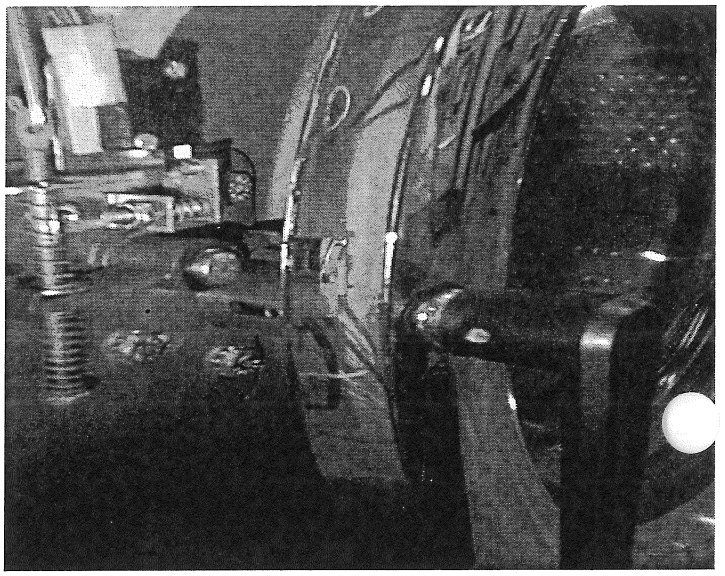


PHOTO #7
JUST TO SHOW WITHOUT GAUGE IN PLACE.

PHOTO # 8
THE COMPLETE ASSEMBLY



Drive Motor

Refer to Specifications Chart for horse power and amperage draw on motors.

Removal

A. Remove the drive belt as explained above.
B. Remove the tension spring and bracket.
C. Disconnect the motor wires from the variable frequency drive.
D. Loosen the set screws on the motor support shaft.
E. Remove the motor support shaft.
F. Lift motor out of machine.

Note: On larger washers it is advisable to put a board under the motor and slide it out rather than lifting it.

Control Panel Name Plate

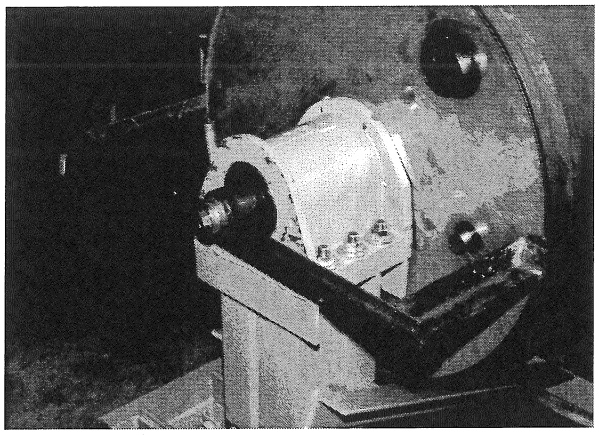
The name plate on washer front is adhesive backed.

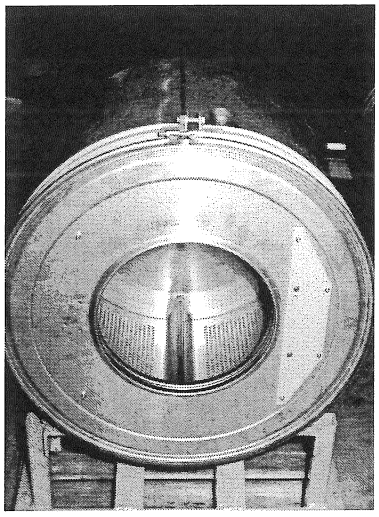
Removal

A. The name plate may be removed by simply peeling it off.

Installation

A. Remove any remaining glue from the control panel.
B. Before removing the paper backing from the name plate, check fit to the control panel.
C. Remove the paper backing from the right side of the name plate, position it on the panel and press right end into place, then peel the backing from the left end and press into place.





Cylinder (basket)

Removal

A. Remove the top panel as described previously.
B. Remove lower service panel as described previously.
C. Remove front panel as described previously.
D. Remove masking ring as described previously.
E. Remove door lock assembly. (Leave wires & pull rod in place)
F. Remove clothes door.
G. Remove tub front clamp ring.
H. Remove tub front. Use a flat screw driver to pry the tub front loose.
I. Remove the rear access panel.
J. Remove the drive belts.
K. Remove drive pulley.
    1. Remove 3 retaining screws.
    2. Insert 3 2" screws into the threaded removal holes.
    3. Alternately tighten these screws evenly to pull the pulley off.
L. Remove pulley hub. Drive a flat screw driver into the slot in the hub and pull it from the shaft.
M. Install cylinder puller.
(Snap On part #CJ-84-C) Be sure to thread a bolt into the end of the cylinder shaft to protect the threads.
N. Push the basket out.

Reassembly

A. Use the hub of the drive pulley, a stack of 5/8" flat washers and a 3" long 5/8" bolt to pull the cylinder shaft through the bearings. After the 3" bolt a 2" long bolt will be required to finish pulling the cylinder shaft through.
B. Remove the 1/2" bolt and nut from the top of the outer tub clamping band.
C. Install Dexter Tool part # 8545-056-001 on the back of the outer tub to adjust tub front to cylinder clearance.Thread 5/8" bolt through tool and into cylinder shaft. Push the outer tub forward 1/4" to 1/2" with tool 8545-056-001by tightening the 5/8" bolt. This will ease the installation of the outer tub front.
D. Clean the silicone rubber off the tub front and the outer tub.
E. Install new bead of silicone rubber on tub front.
F. Install tub front.
    1. Align hole in top of tub front with notch in top of outer tub.
    2. Use 4-6 #11R vise grip clamps to hold tub front to outer tub. A rubber mallet may be needed to properly seat the tub front into the outer tub.
    3. Install tub front gasket around outer edge of tub front and outer tub flange. The opening should be centered at the top.
    4. Remove vise grips. The tub front gasket will hold the tub front in place.
G. Install tub front clamp ring and tighten. Tap around the clamp ring with a rubber mallet to seat the ring and gasket while tightening the clamp ring bolt.
H. Adjust clearance between the outer tub front and the front lip of the cylinder to 5/16".
I. Tighten the outer tub clamping band.
J. If necessary, the outer tub may be adjusted up or down and side to side with the 2 bolts that fasten the bottom of the outer tub clamping band to the frame.
K. Remove Dexter Tool part 8545-056-001 from the back of the outer tub.
L. Install drive pulley.
    1. Install hub on cylinder shaft.
    2. Hold hub against rear bearing with 5/8" bolt and flat washer in end of cylinder shaft.

3. Line up 3 unthreaded holes in pulley with the 3 threaded holes in hub.

4. Insert 3 pulley bolts and tighten evenly alternating bolts to 30ft/lbs.

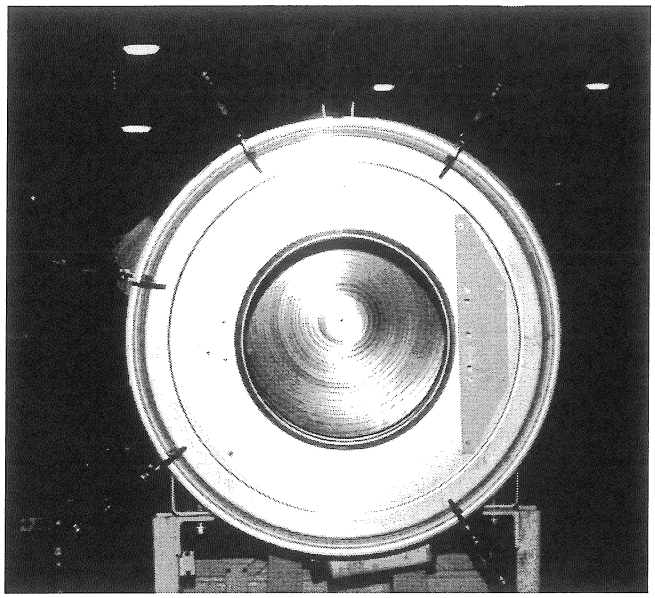
Note: Overtightening or uneven tightening can break drive pulley.

M. Install drive belts.

N. Install back panel.

O. Install door lock. All mounting holes should be sealed with silicone rubber.

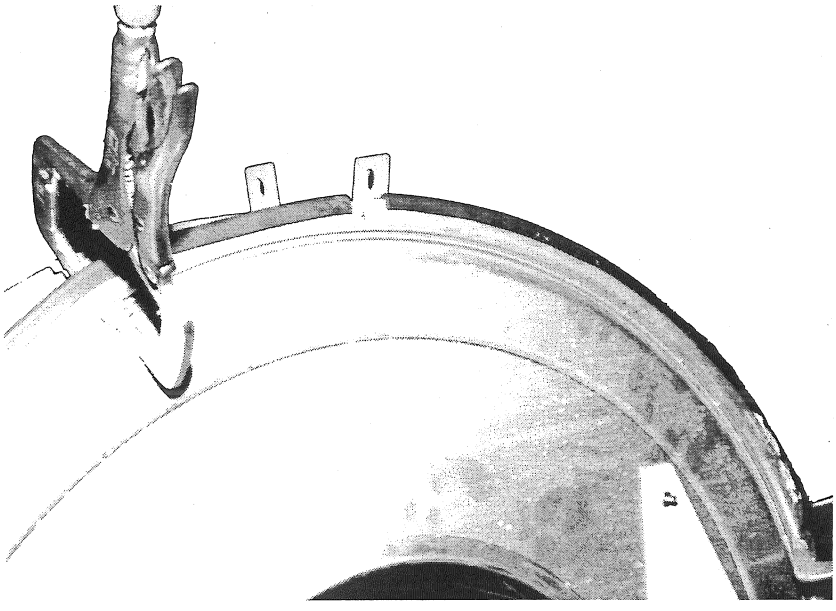
P. Install door, masking ring, front panel, lower service panel and top.



Torque all bolts according to the following chart.

Bolt Torque Chart

Bolt Size	Where Used	Torque
7/16" Stainless Cap Screw	Outer Tub to Bearing Housing	60-80 ft/lbs
3/4" Bolt	Bearing Housing to Frame	200-300 ft/lbs
1/2" Bolt	Outer Tub Clamping Band to Frame	70-110 ft/lbs
1/2" Bolt	Outer Tub Clamping Band - Top	30-40 ft/lbs
3/8" Cap Screw	Drive Pulley to Hub	30 ft/lbs



Water Seals

Replacement

A. Remove cylinder from washer (see Cylinder (basket) removal).
B. Remove water seals from the seal mounting plate on the cylinder shaft. These are removed with your fingers.
C. The primary and secondary seals that mount on the sealing ring may be slid over the shaft and seated on the metal sealing ring with your fingers. In the unlikely event that the metal ring that mounts these sealing rings were to be damaged or moved, a new one would need to be pressed on. The T-900 ring must be pushed against the stop on the shaft.
After installing the seals, lubricate the faces of the seals with silicone grease.
D. Install cylinder (see Cylinder (basket) reassembly).

Bearing Housing Assembly

Removal

A. Remove cylinder from washer (see Cylinder (basket) removal).
B. Remove 6 7/16" tub back to bearing housing cap screws.
C. Remove 6 3/4" bearing housing to frame bolts.
D. Remove bearing housing from frame.
E. Remove the retaining ring next to the front bearing.
F. The bearings are pressed into the housing and must be pressed back out.

Reassembly

A. When installing new bearings into a bearing housing, first press the front (large) bearing into the housing until it bottoms and install the snap ring. With the bearing spacer in place, press the rear bearing in until the spacer is snug between the two bearings.

Note: If the tub-back water-seal mating ring has been moved it must be cleaned and resealed with silicone rubber around all 6 bolt holes and around the outer edge.

B. Set bearing housing on frame.
C. Install and torque 6 tub back to bearing housing cap screws according to the previous chart.
D. Install and torque 6 bearing housing to frame bolts according to the previous chart.
E. Install cylinder (see Cylinder (basket) reassembly).

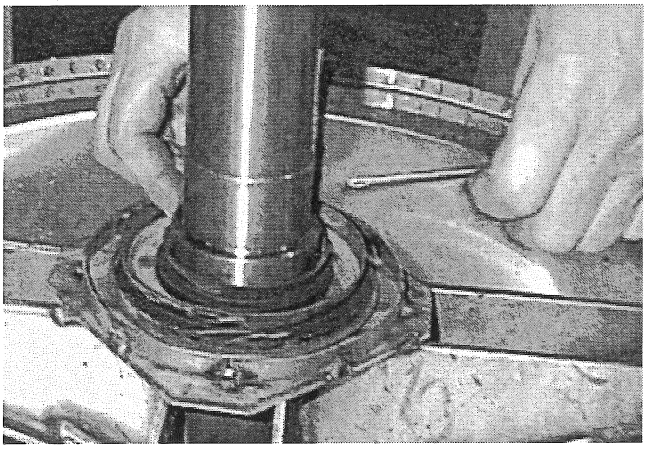
Outer Tub

Removal

A. The outer tub can easily be removed when the tub front, cylinder and bearing housing has been removed as outlined previously.
B. At that point the only attachments to the chassis are the two front strap mounting bolts.

Reassembly

A. See Cylinder (basket) reassembly.



Section 5

Pre Serial # 430010

Trouble Shooting with original pressure switch and square "D" drive

Diagnostic Test Cycle

There is a diagnostic test cycle to assist in both verifying correct operation and identifying functional problems. The test cycle is operated by following these steps:

1. **Turn the Run/Program Key to the Program Position.** The program mode LED (bottom row right side) will light.
2. **Select Test Cycle #31 by using the Up and Down Arrows on the touch pad.** Read the Test Cycle number in the display.
3. **Push the green Start button.** All lights will be on and "00" will be in the display.
4. **Push the Up Arrow to select the following steps:**

When the correct step is selected for the component that is to be tested, push the Start button to operate that component. Releasing the Start button removes power to the component being tested.

Step 1	Door Locking Solenoid
Step 2	Door Locking Thermoactuator
Step 3	Door Unlocking Thermoactuator
Step 4	Close Drain Valve
Step 5	Cold Water Valve for the tub
Step 6	Cold Water Valve for the dispenser
Step 7	Hot Water Valve for the tub
Step 8	Hot Water Valve for the dispenser
Step 9	Tumble clockwise
Step 10	Tumble counter clockwise
Step 11	Open Drain Valve (insures that drain valve is open before spin)
Step 12	Intermediate Extract
Step 13	High Speed Extract

Warning: If the washer has had any of the 30 cycles changed from the factory settings, do not use Step 14 unless you want to reset all 30 cycles back to the factory settings. Step 14 will delete any changes made to all 30 cycles.

Step 14 Reset all 30 Cycles to Factory Settings (must push the Start Button and hold it, then push the Up Arrow button to reset to Factory Settings)

To Exit the Test mode, push the red Stop button and turn the Run/Program Key back to the Run position.

Symptom	Probable Cause	Suggested Remedy
Machine does not start	Power supply	Check these areas: Circuit breakers, Voltage, Power leads, Power connections
	Start button	Check for green start button light on input/output board when button is depressed. If no light replace membrane switch assembly.
	Control breaker	Check 1.5 amp breaker for continuity. If no continuity, replace breaker.
	Door switch	Check for continuity through door switches when door is closed and locked. Check input/output board for green door closed light and green door locked light showing that door switches are functioning correctly. If no continuity or green light on when door closed, replace door switch.
	Control transformer	Check voltage output from control transformer for 120VAC. If voltage is incorrect, replace transformer.
	CPU board	Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red light. If on solid, all okay. If still flashing or not on, replace CPU board.
Door does not lock	Door switch	See door switch above.
	Door locking solenoid	Check to insure that solenoid is receiving 120 volts from input/output board. If it is, replace solenoid.
	Run Relay	Check to insure that input/output board is sending 12VDC to close relay when door is latched (red & yellow wires). Check to insure that there is 115VAC coming to the run relay on the white/red wire and that there is 115VAC going out of the relay to the input/output board on the red/white wire.

Symptom	Probable Cause	Suggested Remedy
Door does not lock (continued)	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for green door closed light. If no green light, check door closed switch. If green light is on, check input/output board for illuminated red door lock solenoid output light. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red door lock solenoid output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the door locking solenoid. If no voltage, replace I/O board.
Door will not open	Thermoactuator	Check to see if thermoactuator(s) and/or its mechanism is stuck or binding and not allowing the door lock solenoid to open. Check to be sure that red light on input/output board for locking thermoactuator is not illuminated and that input/output board is not sending 120VAC power to the locking thermoactuator during the last 70 seconds of the cycle. Check to be sure that red light on input/output board for unlocking thermoactuator is illuminated and that input/output board is sending 120VAC to the unlocking thermoactuator during the last 30 seconds of the cycle.
	Door rod	Check to see that door rod from solenoid to lock ass y is long enough to allow lock ass y to disengage. If not, adjust rod.
	Door lock solenoid	Check that door lock solenoid is not stuck closed. Check to be sure that input/output board is not sending 120VAC power to door locking solenoid. Be sure that red light on input/output board for door locking solenoid is not illuminated. If door lock solenoid is receiving 120VAC, check CPU, Ribbon Cable and Input/Output board above.

Symptom	Probable Cause	Suggested Remedy
Door will not open (continued)	CPU board, Ribbon Cable or Input/output Board	Check red door lock solenoid light on input/output board. If illuminated, remove power to washer for 2 minutes to reset CPU board. Reapply power to washer and check red door lock solenoid light. If no light, okay. If red light is still on, check the CPU board as described above under "Door does not lock". If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red door lock solenoid output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the door locking solenoid. If voltage, replace I/O board.
Machine starts but will not advance	Water valves	Check to insure that water valves are operating. If not, check to be sure that red light on input/output board for water valves is illuminated and that input/output board is sending 120VAC to the water valve. If 120VAC, change water valve. If no voltage check input/output board as described under input/output board.
	Drain valve	Check to insure that drain valve is closing. If not, check for 120VAC to drain valve from input/output board. If 120VAC, change or clean drain valve. If no voltage, check CPU board, ribbon cable and I/O board.
	Fill hose screens Water valve screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	Pressure switch	Pressure switch must be in the low or high position to close the circuit to the input/output board. Either the green low level or high level light on the input/output board must be lighted. Check pressure switch continuity between terminals #21 & #12 for low level and #21 and #22 for high level.

Symptom	Probable Cause	Suggested Remedy
Machine starts but will not advance (continued)	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red water valve and drain valve output lights. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red drain valve or water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the drain valve or water valve. If no voltage, replace I/O board.
Machine tumbles in only one direction	Variable Frequency Drive	Check blue and orange wires on variable frequency drive for alternating 24VDC for forward and reverse direction from the input/output board. If no voltage, see CPU board, Ribbon Cable or Input/Output board below. Be sure to check wire connections at drive.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for alternating illuminated red output lights for forward and reverse. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red forward and reverse output lights on the input/output board are illuminated, check to insure that 24VDC is going from the input/output board to the variable frequency drive. If no voltage, replace I/O board.
Washes but does not give intermediate spin	Pressure switch	Pressure switch must be in the empty position to close the circuit to the input/output board. The green empty light on the input/output board must be lighted. Check pressure switch for continuity across terminals #21 & #12 indicating pressure switch has reset to empty.

Symptom	Probable Cause	Suggested Remedy
Washes but does not give intermediate spin (continued)	Variable Frequency Drive	Check Variable Frequency Drive - Green light on back illuminated, Drive Okay Check all wires on Drive to insure a good connection. - Red light on back illuminated, do the following: 1. Disconnect power to washer for 2 minutes to reset motor drive. Reconnect to power and check for green light. Green--okay. Red--go to step 2. 2. Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault, lighting the red light. Reconnect power to the washer and check the green light. Green--okay. Red--change the motor drive.
	CPU board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red output light for intermediate spin. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red intermediate spin output light on the input/output board is illuminated, check to insure that 24VDC is going from the input/output board to the variable frequency drive. If no voltage, replace I/O board.
Machine starts and advances through cycle but motor does not operate	Variable Frequency Drive and Motor	Check Variable Frequency Drive - Green light on back illuminated, Drive Okay Check all wires on Drive to insure a good connection. - Red light on back illuminated, do the following: 1. Disconnect power to washer for 2 minutes to reset motor drive. Reconnect to power and check for green light. Green--okay. Red--go to step 2. 2. Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault, lighting the red light. 3. Check motor. Disconnect from power. Push tab on bottom of drive and remove lower cover. **(Do not remove complete cover as it will damage the drive)** Disconnect the three gray wires that operate the motor from terminals "U", "V", and "W" in the drive. Reconnect power to the washer and check the green light. Green--change the drive motor. Red--change the motor drive.

Symptom	Probable Cause	Suggested Remedy
Machine starts and advances through cycle but motor does not operate (continued)	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red motor output lights. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red motor output lights on input/output board are illuminated, check to insure that 24VDC is going from the input/output board to the variable frequency drive. If no voltage, replace I/O board.
Intermediate spin speed works-no high extract	Variable Frequency Drive and Motor	Check Variable Frequency Drive - Green light on back illuminated, Drive Okay Check all wires on Drive to insure a good connection. - Red light on back illuminated, do the following: 1. Disconnect power to washer for 2 minutes to reset motor drive. Reconnect to power and check for green light. Green--okay. Red--go to step 2. 2. Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault, lighting the red light. 3. Check motor. Disconnect from power. Push tab on bottom of drive and remove lower cover. **(Do not remove complete cover as it will damage the drive)** Disconnect the three gray wires that operate the motor from terminals "U", "V", and "W" in the drive. Reconnect power to the washer and check the green light. Green--change the drive motor. Red--change the motor drive.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red intermediate and high extract output lights. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red intermediate and high extract output lights on input/output board are illuminated, check to insure that 24VDC is going from the input/output board to the variable frequency drive. If no voltage, replace I/O board.

Symptom	Probable Cause	Suggested Remedy
Hot water does not enter tub	Water valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from input/output board. If 120VAC, change water valve. If no voltage check input/output board as described below.
	Fill hose screens Water valve screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	Pressure switch	Pressure switch must be in the empty position to close the circuit to the input/output board. The green empty light on the input/output board must be lighted. Check pressure switch for continuity across terminals #21 & #12 indicating pressure switch has reset to empty.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red water valve output light. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the water valve. If no voltage, replace I/O board.
Cold water does not enter tub	Water valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from input/output board. If 120VAC, change water valve. If no voltage check input/output board as described below.
	Fill hose screens Water valve screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	Pressure switch	Pressure switch must be in the empty position to close the circuit to the input/output board. The green empty light on the input/output board must be lighted. Check pressure switch for continuity across terminals #21 & #12 indicating pressure switch has reset to empty.

Symptom	Probable Cause	Suggested Remedy
Cold water does not enter tub (continued)	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red water valve output light. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the water valve. If no voltage, replace I/O board.
No hot water detergent dispenser	Water valves	Check to insure that water valve is operating. If to not, check for 120VAC to water valve from input/output board. If 120VAC, change water valve. If no voltage check input/output board as described below.
	Fill hose screens Water valve screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red water valve output light. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the water valve. If no voltage, replace I/O board.

Symptom	Probable Cause	Suggested Remedy
Water does not flush softener compartment	Water valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from input/output board. If 120VAC, change water valve. If no voltage check input/output board as described below.
	Fill hose screens Water valve screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated red water valve output light. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board.(Check with factory for latest testing procedures for I/O board) If red water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the input/output board to the water valve. If no voltage, replace I/O board.
Water level too high	Pressure switch	Pressure switch must be in the low or high position to close the circuit to the input/output board. Either the green low level or high level light on the input/output board must be lighted. Check pressure switch continuity between terminals #21 & #12 for low level and #21 and #22 for high level.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	CPU Board, Ribbon Cable or Input/Output Board	Check input/output board for illuminated green low or high level input light. If green input light is illuminated, check single red light on CPU board. Single red light should be illumi nated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board. (Check with factory for latest testing procedures for I/O board) If still not corrected, change input/ output board.

Symptom	Probable Cause	Suggested Remedy
Water comes in but level does not rise	Drain Valve (open)	Check these areas - Drain valve blockage - Drain valve motor and gear train. If power but drain valve does not close, replace valve. - Power to the drain valve. If no power to drain valve, check (brn/yel) circuit for power.
Water drains slowly	Drain System	Check hoses and dump valve for blockage. Clean if necessary. Check building drains for blockage or inadequate size.
Water leakage around loading door	Door adjustment	Door may need adjustment due to abuse or wear. Check tightness around perimeter using a dollar bill. Adjust left to right tightness by shims at door lock or hinge side. It is important to center gasket to tub opening before tightening door to hinge bolts. Chalk may be used on tub front to show point of contact with tub. If gasket is deformed, worn, or damaged, replace. Refer to parts section for door gasket expander kit.
Excessive vibration	Mounting system	Check these areas: Strength of mounting structure, concrete or base. Mounting bolts may be loose and need tightening.
	Drive belt	Worn drive belt can cause vibration and noise.
	Pulleys	Damaged pulleys.
	LOADING	NOTE: SMALL LOADS CONTRIBUTE TO OUT OF BALANCE LOADING AND INCREASE VIBRATION.

Section 6

Parts Data & Service Kits

Thoroughbred 900

Accessories

Model WCN55AFHX 208-240 volts 60hz. Single or Three Phase
Computer Industrial Washer
Model WCN55AFH 208-240 volts 60hz. Single or Three Phase
Computer Industrial Washer
Model WCN55AFHXH 208-240 volts 60hz. Three Phase
Electric Heated Computer Industrial Washer

Part Number	Description
9990-027-013	Hose, Water Supply (furnished) 5/8" 2
8641-242-000	Washer, Inlet Hose (furnished) 2
9565-003-001	Strainer, Inlet Hose (furnished) 2
9732-139-002	Kit, Door Gasket Expander (large) 1
9732-139-001	Kit, Door Gasket Expander (small) 1
8545-056-001	Special Tool for adjusting spacing between outer tub front and cylinder front
9183-036-001	Electrical noise filter options (see next 2 pages for installation) ... 1
9183-033-001	Electrical noise filter options (clamp on type) 6
Snap On #CJ-84-C	Puller for pushing cylinder out of bearings
Vise Grip #11R	Clamps to hold tub front to outer tub when installing tub front
9475-002-002	Flow Restrictions
9732-191-001	Replaces Relay 5192-286-009
9738-173-001	Pressure Switch Replacement
9732-172-001	Steam Inject Kit
9732-171-001	Hot Water Flush After Chemical Injection
9732-146-001	Mounting Template
9732-108-002	Soap Dispenser Kit
9732-038-001	Stator and Coil Kit Depend-O-Drain 120 volt
9732-314-003	Kit - Electronic Pressure Sensor for 30 cycle OPL washers, 50 Hz
9732-314-002	Kit - Electronic Pressure Sensor for 30 Cycle OPL washers

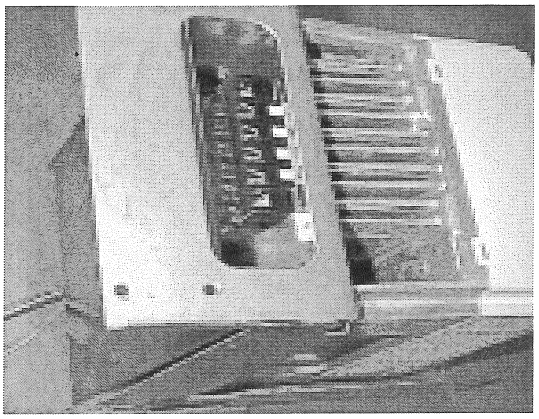


photo #1

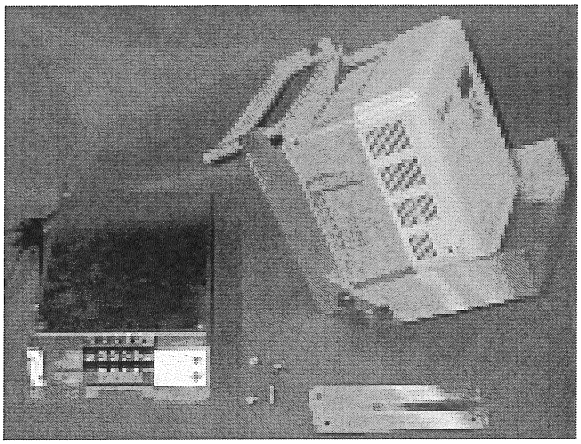


photo #2

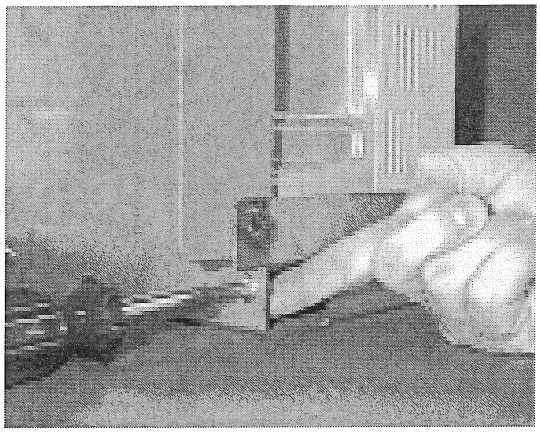


photo #3

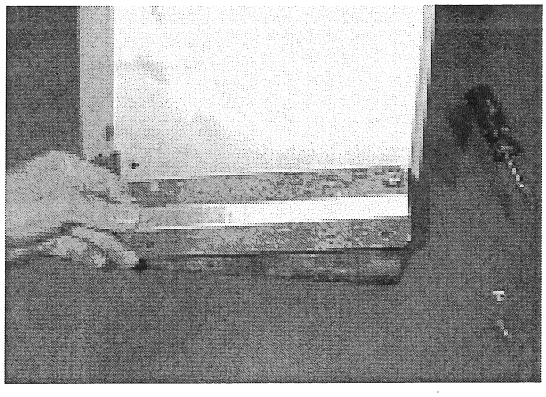


photo #4

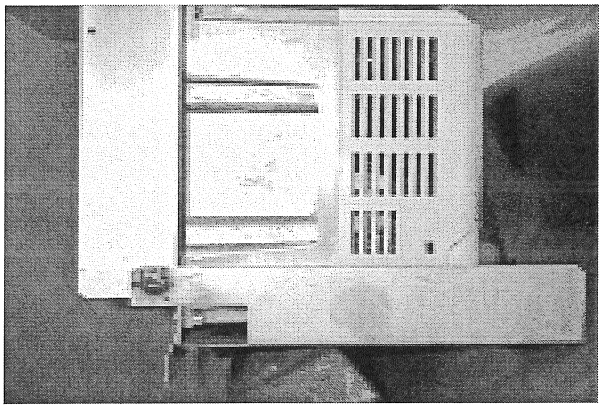


photo #5

9183-036-001

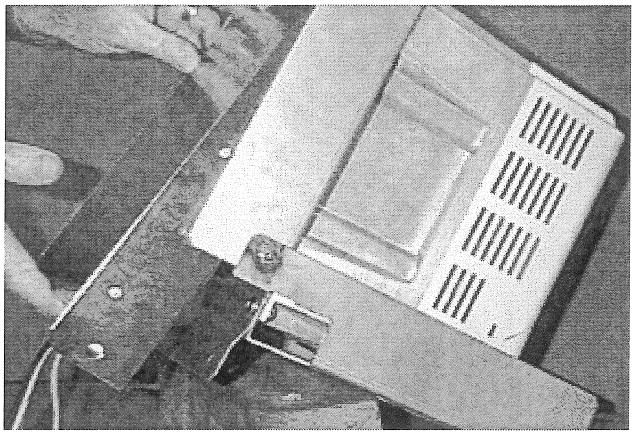


photo #6

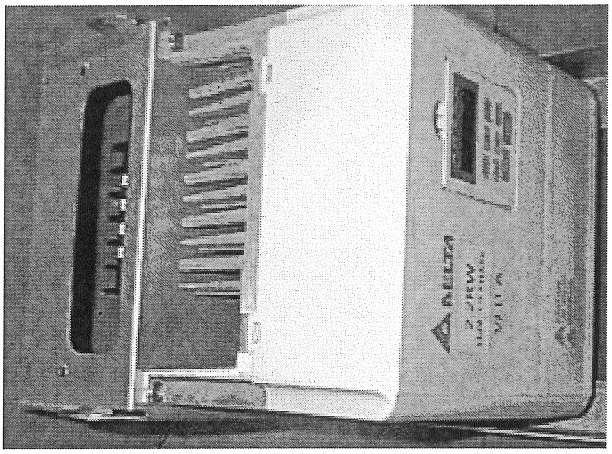


photo #7

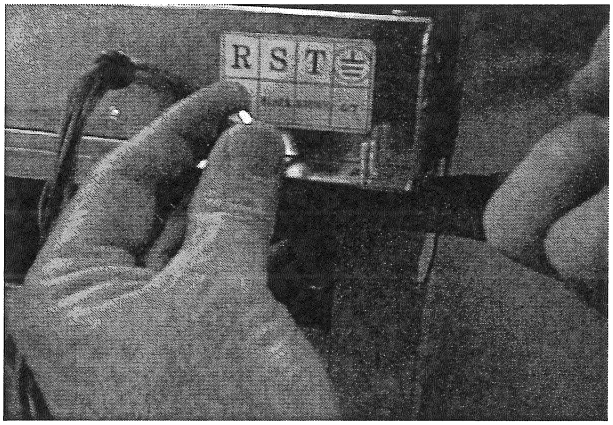


photo #8

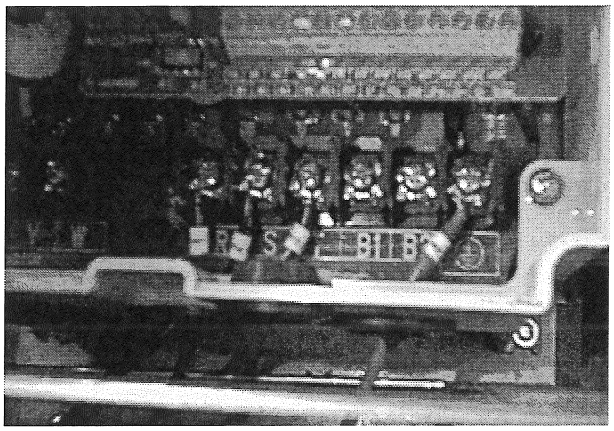
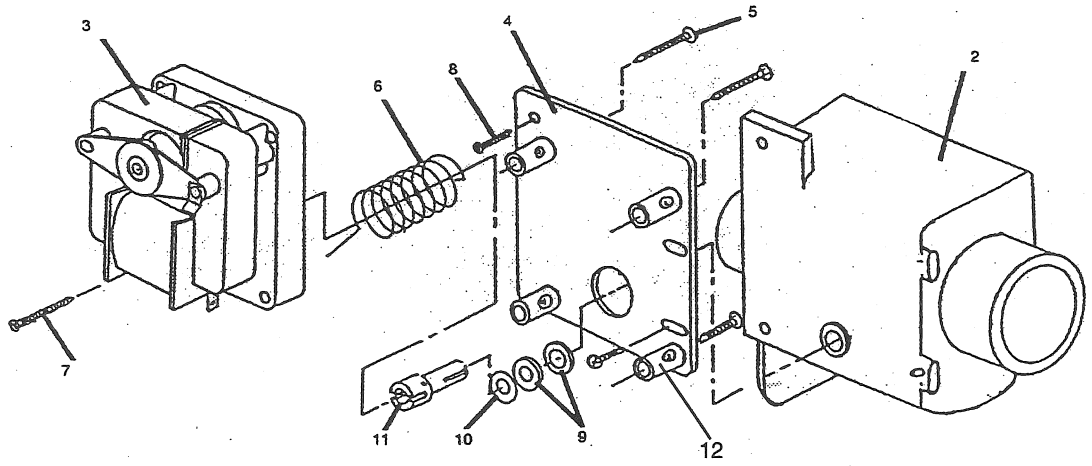
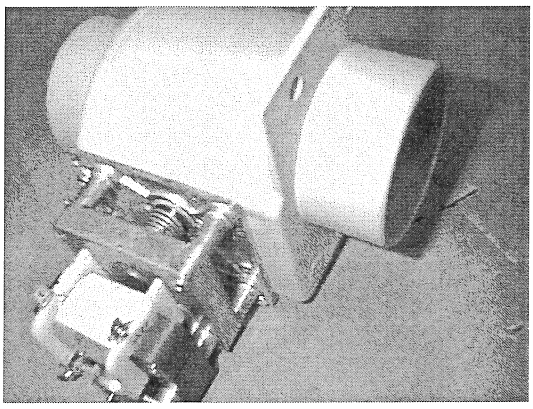


photo #9

DRAIN VALVE GROUP

Key	Part Number	Description	
1	9379-187-001	Valve, Drain (includes #2 thru #11)	1
2	9064-070-001	Body, Valve (w/ball)	1
3	9914-137-001	Motor & Gear Train	1
4	9452-538-001	Plate, Motor Mtg	1
5	8639-994-001	Screw	3
6	9534-339-001	Spring, Drive	1
7	9545-054-001	Screw	2
8	9545-054-002	Screw	1
9	9532-134-001	Seal, V Packer	2
10	8641-584-001	Washer	1
11	9451-196-001	Pin, Main Drive	1
12	9538-149-001	Plate,(spacer needed for replacement motor mtg. plate)	4

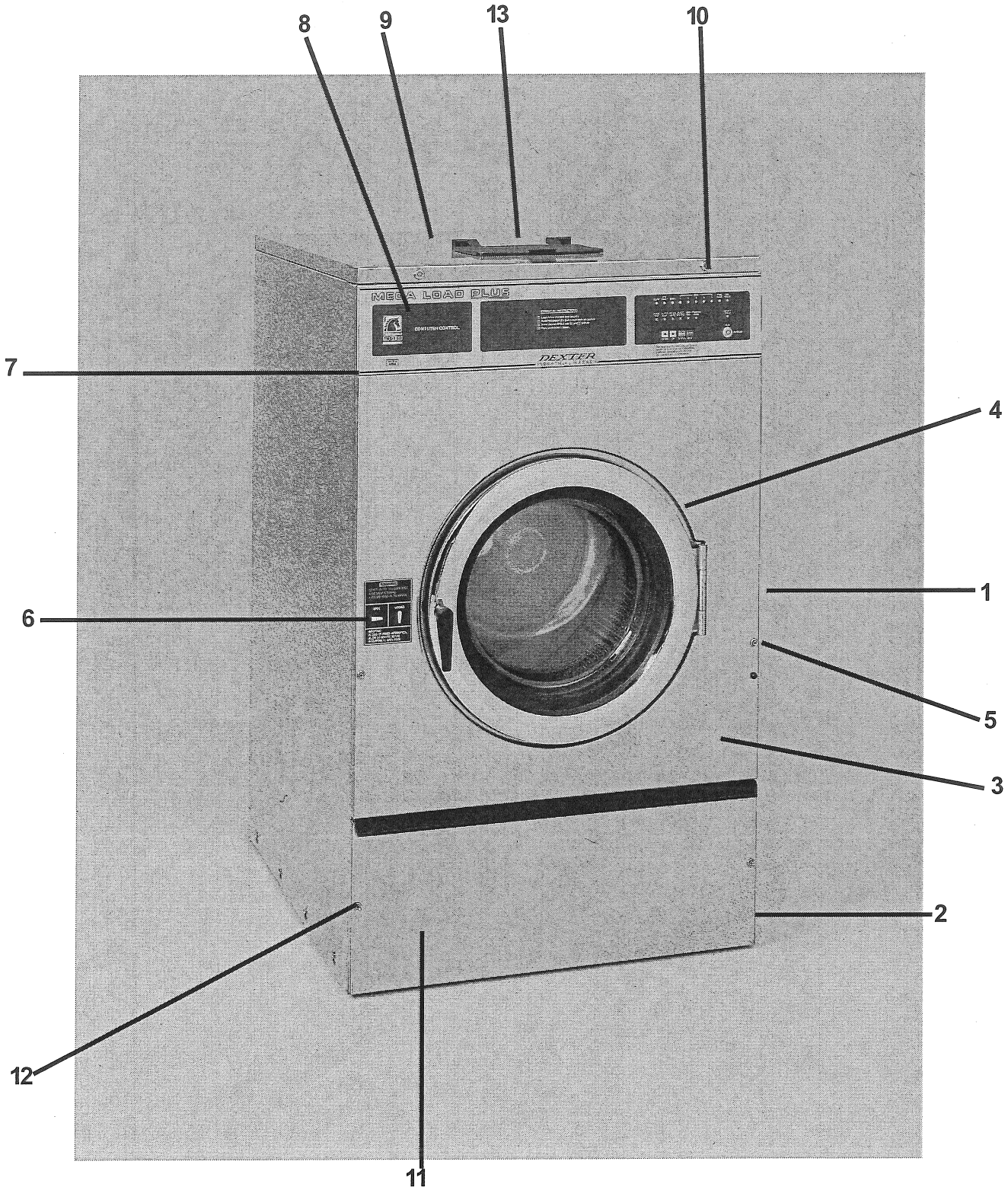




CABINET AND FRONT PANEL GROUP

Key	Part Number	Description	
1	9454-672-001	Panel, Side (Left or Right)-Stainless	4
*	9545-018-013	Screw, Side to Side 1/4-20x1/2	8
*	8640-414-006	Nut, Keps	8
2	9966-012-001	Strap Assy, Side Panel	4
2	8640-414-006	Nut	8
3	9454-671-003	Panel Assy, Front (for 180 degree door hinge)	1
4	9059-063-002	Band, Edge Protector	1
*	9545-008-024	Screw, Hex- To Control Panel	2
*	8640-399-005	Nut, Spring- To Control Panel 10-32	2
5	9545-008-014	Screw, Flat Head- Front to Sides #10x1 3/4	4
5	8641-585-001	Washer, Finish	4
*	8640-399-008	Nut, Spring- To Control Panel	4
*	9545-008-023	Screw, Fillister Head Guide	2
6	8502-624-003	Label, Door Opening	1
7	9989-456-001	Panel, Control (Mounts Nameplate)	1
*	9545-008-024	Screw, Control Panel Mtg	2
*	8640-399-005	Nut, Spring	2
*	9545-008-026	Screw, Hex Wshr-Control Panel to Sides	4
8	9412-093-002	Nameplate, Control Panel	1
*	9355-001-001	Locator, Panel	1
*	9545-008-026	Screw, #10x1/2	1
9	9454-673-001	Panel, Top	1
10	8650-012-003	Lock, Top (w/Key)	2
*	9306-025-001	Key, Top-6324	
*	9095-038-001	Cam, Lock Top	2
*	8640-426-001	Nut, 9/32-28	2
*	8641-581-008	Washer, Flat 5/16	2
11	9108-099-001	Door, Lower Service	1
*	9244-081-003	Handle (bumper guard)	1
*	9545-045-010	Screw, Handle Mtg #8Bx3/8 SS	4
*	9545-008-023	Screw, Fillister Head Guide 10Bx1/2	2
12	9545-008-014	Screw, Flat Head 10Bx 1 3/4	2
12	8641-585-001	Washer, Finish	2
*	8640-399-008	Nut, Spring	2
13	9108-095-003	Door, Dispenser	1
*	9451-191-001	Pin, Plain	2
*	9467-025-001	Post, Door Mounting	2
*	9545-045-002	Screw, Dispenser Post Mtg 8Bx1/2	4
*	9545-008-012	Screws, Dispenser Mounting #10Bx1	4
*	8640-399-007	Nuts, Spring	4

* Not Illustrated


8
9
13
10
MEGA LOAD PLUS
DEXTER
7
4
6
1
5
3
2
12
11

REAR VIEW

Key	Part Number	Description	
1	9376-298-001	Drive Motor 240/3/60	1
2	9497-222-004	Rod, Motor Mtg	1
*	9545-029-009	Screw 3/8-16x3	1
*	8641-582-003	Lockwasher	1
3	9076-052-002	Collar, Shaft (w/set screws)	4
4	9453-175-002	Pulley, Motor	1
5	9053-077-001	Bushing, Split Taper	1
6	9545-018-021	Screw 1/4-20x1	3
7	9453-176-005	Pulley, Driven	1
8	9053-078-002	Bushing, Taper	1
9	9545-029-011	Screw	3
9	8641-582-003	Lockwasher	3
10	9040-079-002	Drive Belt	1
11	9081-109-001	Channel, Rear	1
12	9545-008-026	Screw	4
*	8640-399-004	Nut, Spring	4
13	9242-449-004	Hose, Overflow	1
14	8654-029-000	Clamp, Hose	2
*	9989-455-001	Panel Assy., Back	1
15	9545-030-002	Screw, To Base- 1/4x3/4	3
*	9545-008-026	Screw, 10Bx 1/2	14
*	8640-399-004	Nut, Spring	10
*	9242-175-004	Hose, Pressure Switch	1
*	8654-117-015	Clamp, Pressure Sw. Hose	1
16	5198-211-004	Circuit Breaker, 1.5 amp	1
17	9883-005-001	Injector Ass'y	1
18	9242-461-001	Hose, Injector Ass'y VACBRKR to Tub	2
19	8654-117-014	Clamp	4
22	9242-463-004	Hose Overflow Suds Vent	1

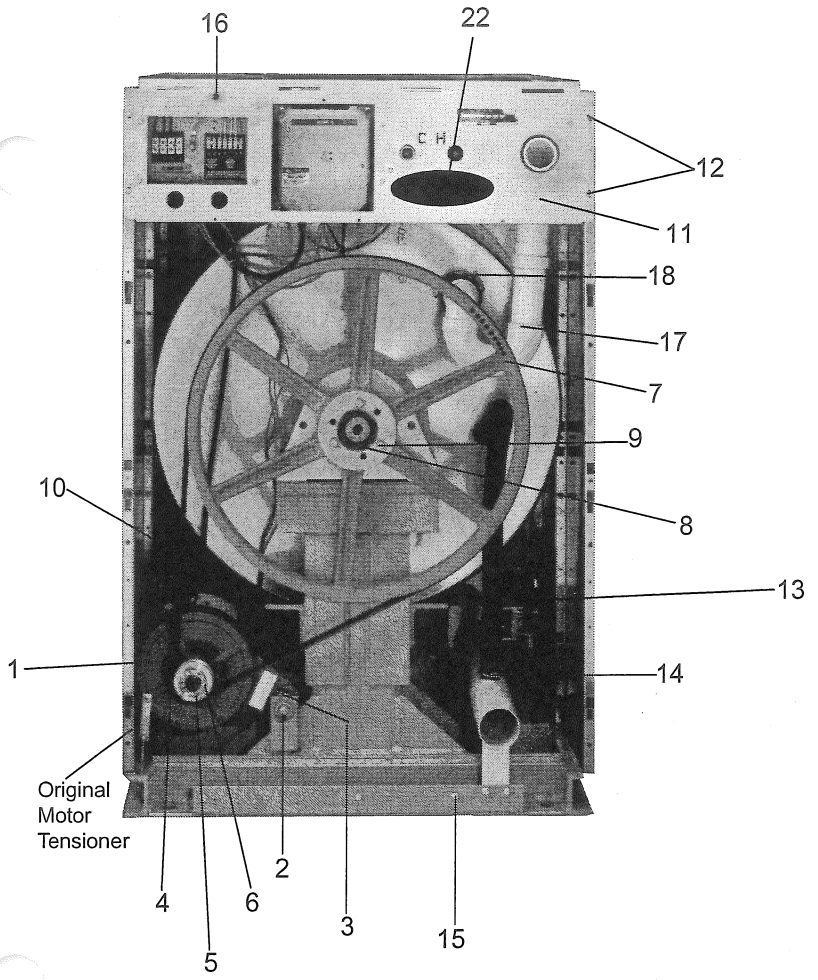
Original Motor Tensioner (20 thru 23) (not pictured)

*	9029-027-004	Strap, Motor Tension	1
*	8640-413-002	Nut, Strap to Motor	1
*	8641-581-006	Washer	1
*	9545-018-020	Screw 1/4x3	1
*	8640-414-003	Nut, Elastic Stop	1

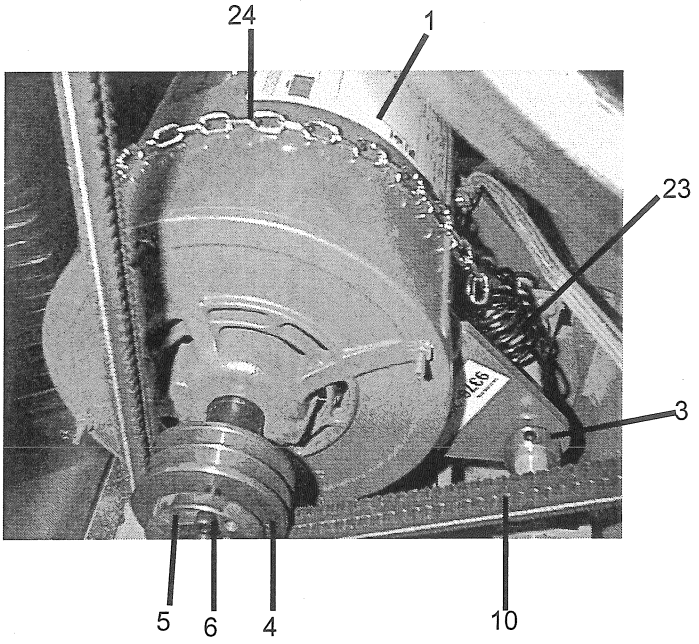
Current Motor Tensioner (pictured)

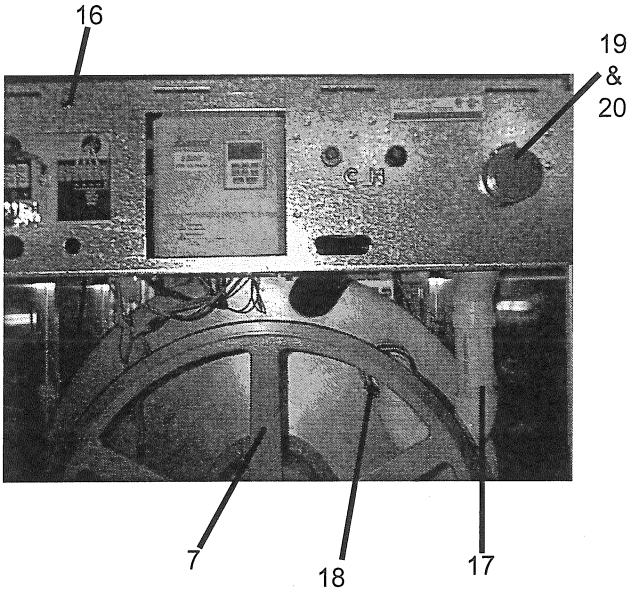
*	9545-055-001	Bolt, Eye	1
23	9534-151-000	Spring, Belt Tension	1
*	9099-012-003	Chain, Spring Tension	1
24	9341-046-001	Link, Chain	1
*	8640-414-003	Nut, Stop	1
*	8640-413-002	Nut, Link to Motor	1
*	8641-581-018	Washer	1

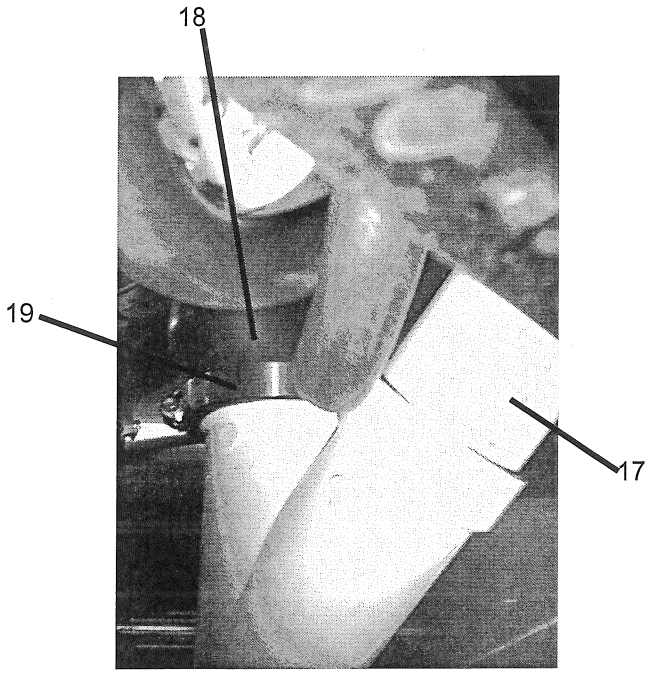
* Not Illustrated



Current Motor Tensioner



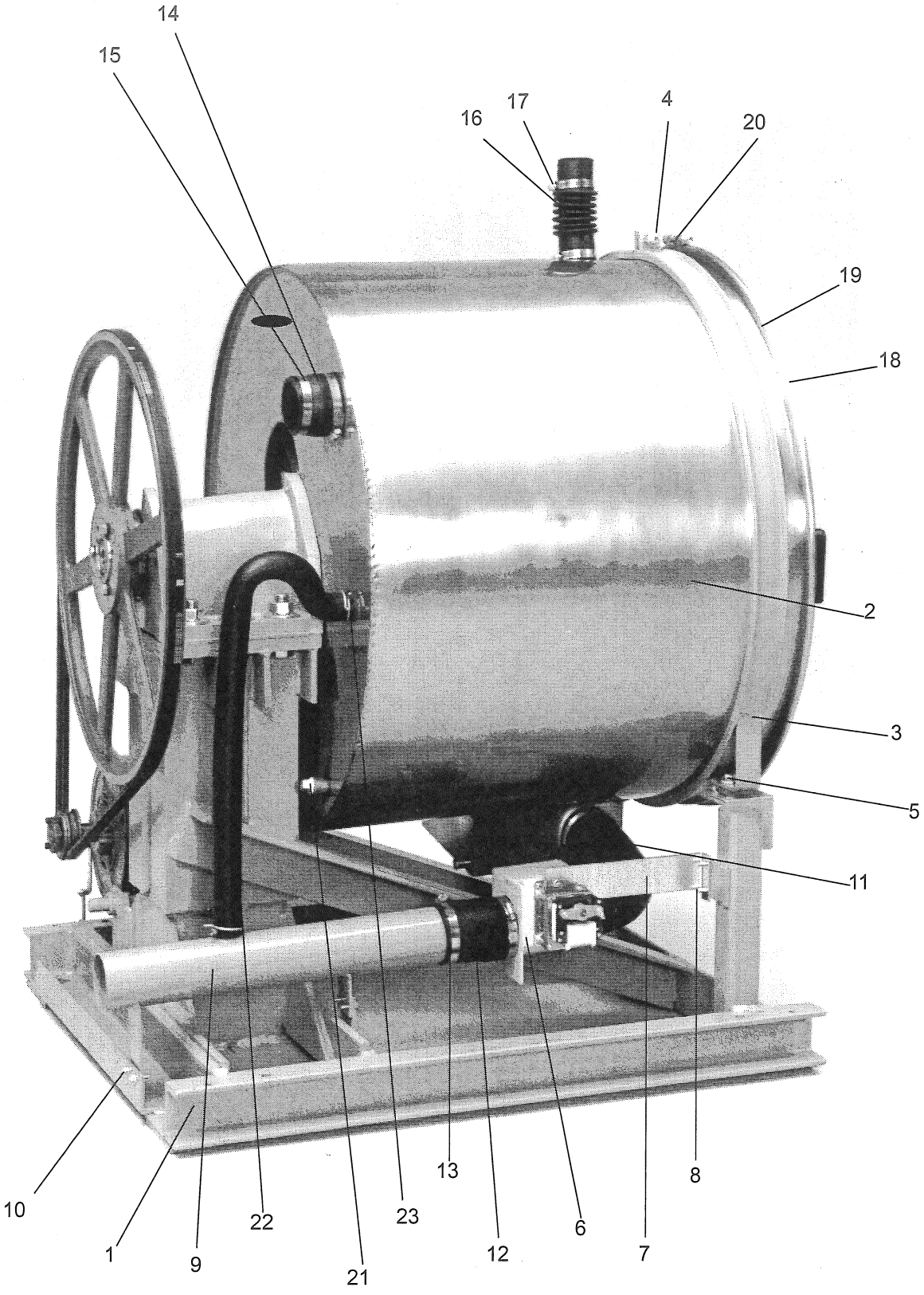




CHASSIS AND DRAIN GROUP

Key	Part Number	Description	
1	9945-105-002	Base Assy, Frame	1
2	9930-138-001	Tub Assy	1
3	9950-053-002	Ring Assy, Tub Mtg-Front	1
4	9545-017-013	Screw, 1/2-13x2 Grade 5	1
4	8640-417-002	Nut	1
4	8641-582-016	Lockwasher	1
5	9545-017-013	Bolt, 1/2-13x2, Grade 5 Tub to Base	2
5	8641-582-016	Lockwasher	2
5	8640-417-002	Nut, Hex	2
5	8641-581-026	Washer flat 1/2	2
*	9950-055-001	Clamp Ring, Tubfront clamp	1
*	9545-029-009	Screw HxSocket 3/8-16x3	1
*	8640-415-001	Nut HX 3/8-16	1
5	9552-013-001	Shim, Thin	4
5	9552-013-002	Shim, Thick	4
6	9379-187-001	Valve, Drain	1
7	9029-126-001	Bracket, Drain Valve	1
*	9545-048-001	Screw, Valve to Bracket	1
*	8641-581-018	Washer	1
8	9545-030-002	Screw, Bracket to Base	2
9	9915-120-002	Tube Assy, Drain	1
10	9545-030-002	Screw, Tube Mtg	4
11	9242-459-001	Hose, Tub to Drain Valve	1
12	9242-457-001	Hose, Drain Valve to Tube	1
13	8654-117-014	Clamp, Hose	4
*	9610-001-001	Vacuum Breaker	1
*	9029-069-001	Bracket, Vacuum Breaker	1
*	9545-008-026	Screw	4
14	9241-461-001	Hose, Injector Assy	2
15	8654-117-014	Clamp	4
*	9732-108-002	Dispenser,	1
*	9206-416-001	Gasket, Dispenser	1
16	9242-450-001	Hose, Dispenser to Tub	1
17	8654-117-008	Clamp, Dispenser Hose	2
18	9974-007-001	Front Ass'y, Tub	1
19	9950-055-001	Ring Ass'y, Clamp (tub front to outer tub)	1
20	9545-029-009	Screw, 3/8-16x3	1
20	8640-415-001	Nut, Hex 3/8-16	1
*	9206-421-002	Gasket, Tub Front	1
21	8615-104-039	Pipe Plug	2
22	9242-449-003	Hose, Overflow	1
23	8654-029-000	Clamp, Hose corbin type	2

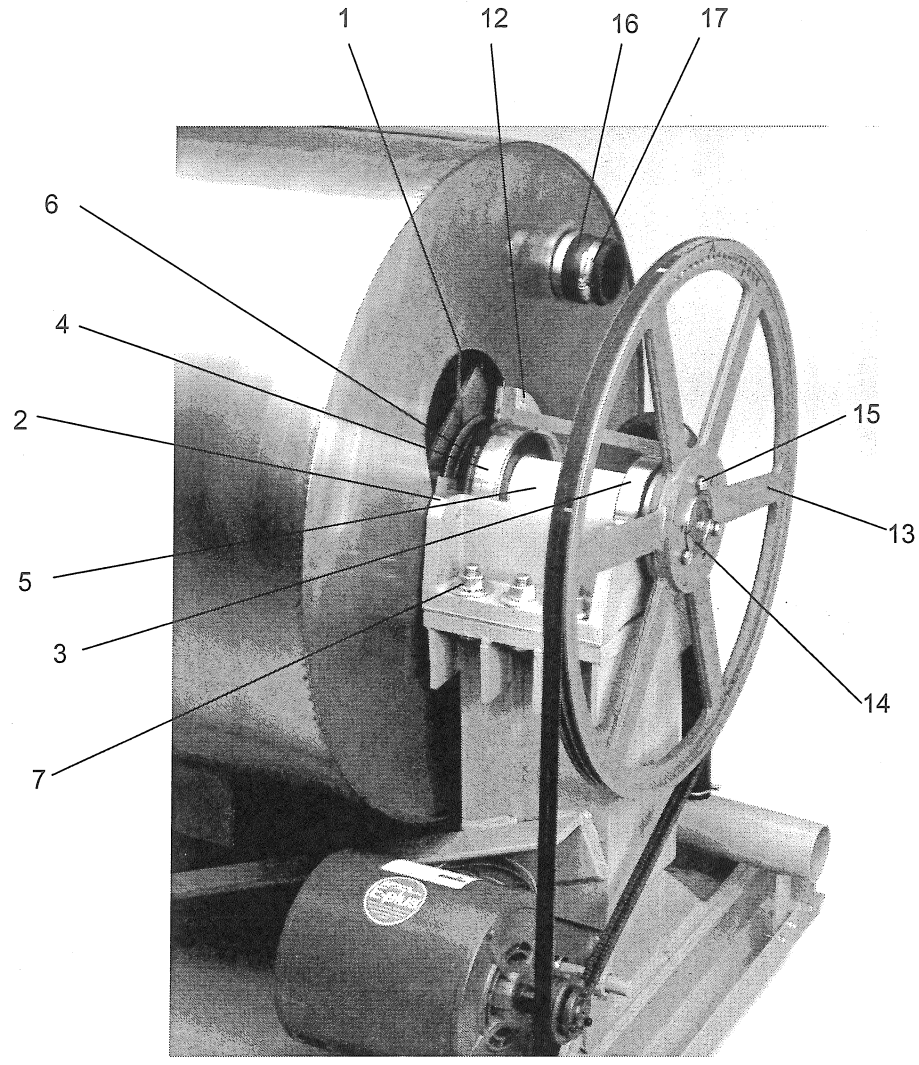
* Not Illustrated

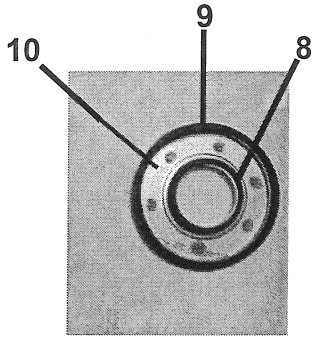

14
15
16
17
4
20
19
18
2
3
5
11
10
1
9
22
21
23
13
12
6
7
8

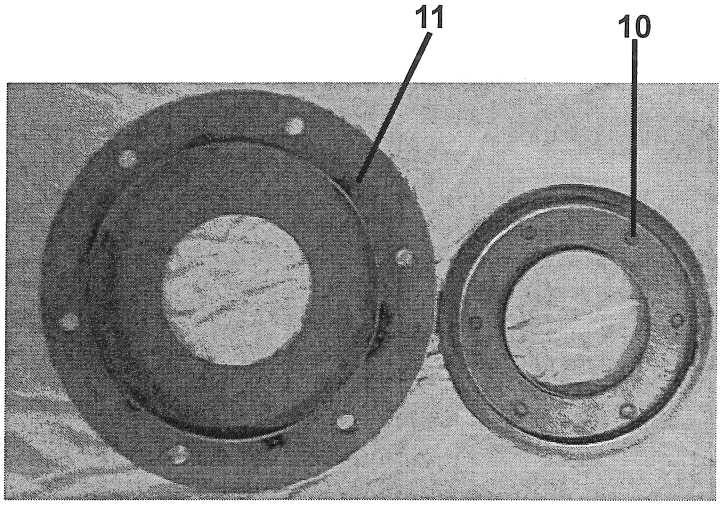
CYLINDER, WATER SEALS & BEARING HOUSING GROUP

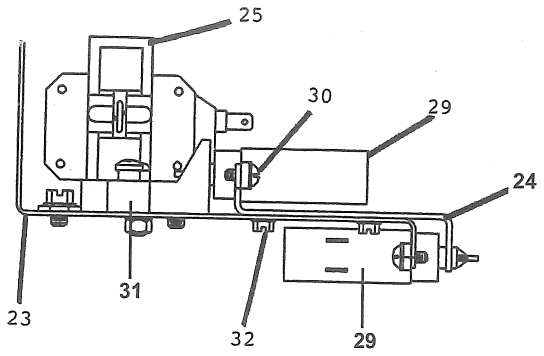
Key	Part Number	Description	
1	9848-116-001	Cylinder, Assy	1
*	9803-187-001	Housing, Bearing- Assembly (includes items #2-#6)	1
2	9241-181-004	Housing, Bearing	1
3	9036-159-005	Bearing, Front Large	1
4	9036-159-006	Bearing, Rear	1
5	9538-170-001	Spacer, Bearing	1
6	9487-238-004	Ring-Retainer, Internal	1
7	9545-057-002	Screw, Bearing Housing, 3/4-10 x 3	6
7	8641-588-001	Washer, Spherical 3/4 Malehalf (used only on AFHX models)	6
7	8641-582-020	Washer, Spherical 3/4 Femalehalf (used only on AFHX models)	6
7	8641-581-003	Washer, Flat to frame (used only on AFH models)	6
7	8641-582-020	Washer, Ext. tooth (used only on AFH models)	6
7	8640-418-003	Nut 3/4-10	6
8	9532-140-007	Seal, Secondary (small)	1
9	9532-140-008	Seal, Primary (large)	1
10	9950-052-001	Ring, Seal Mounting	1
11	9950-054-004	Seal Tub Back Mating Ring	1
12	9545-059-004	Screw, 7/16-14 x 1 SS Tub Back to Bearing Housing	6
12	8641-581-034	Washer, Flat	6
13	9453-176-005	Pulley, Driven	1
14	9053-078-002	Bushing, Taper	1
15	9545-029-011	Screw 3/8-16x2	3
15	8641-582-003	Lockwasher	3
16	9241-461-001	Hose, Injector Assy	2
17	8654-117-014	Clamp	4

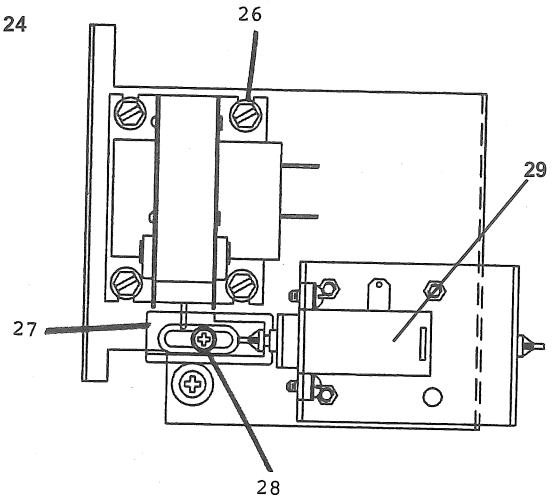
* Not Illustrated

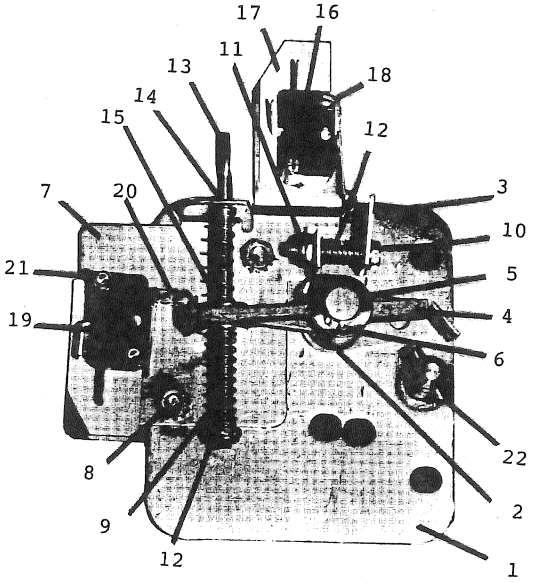

1
12
16
17
6
4
2
5
3
7
15
13
14

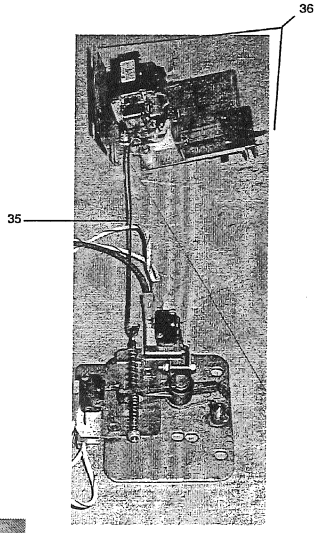

9
10
8

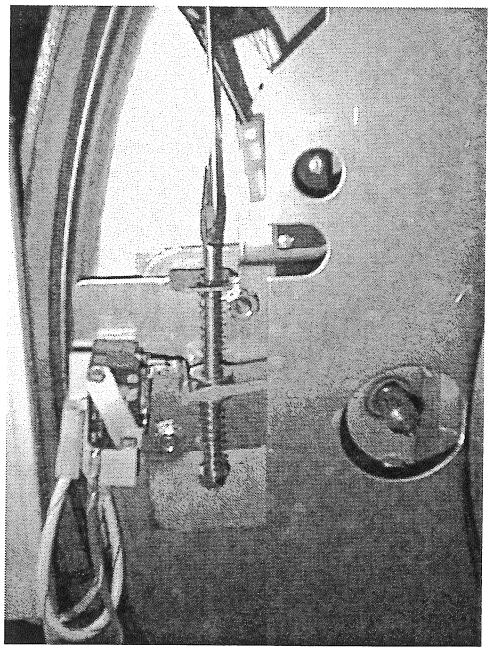

11
10











As mounted at left of Door Handle

DOOR LOCK GROUP

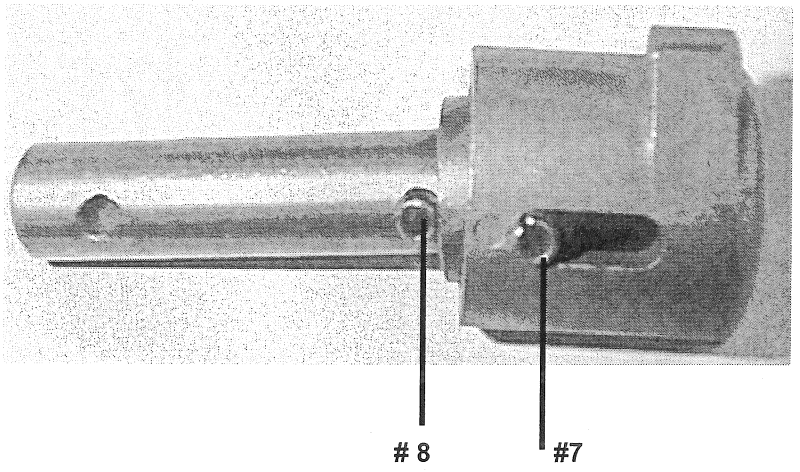
Key	Part Number	Description	
*	9885-023-001	Lock Assy, Complete includes (1 thru 22)	1
1	9982-284-001	Plate Assy, Door Lock	1
2	8641-581-030	Washer, Flat	1
3	9008-005-001	Actuator, Latching Switch	1
4	9450-002-002	Pawl, Locking	1
5	8641-569-003	Washer, Spring	1
6	9487-200-004	Ring, Retaining	1
7	9029-035-001	Bracket, Switch	1
8	8640-413-002	Nut, Hex	2
9	9534-364-002	Spring, Actuating	1
10	9545-012-020	Screw, Hx	1
11	8640-413-004	Nut, Elastic Stop	2
12	9534-364-001	Spring, Return	2
13	9451-193-001	Pin, Guide	1
14	9487-200-005	Ring, Retaining	1
15	8641-581-031	Washer	2
16	9539-461-008	Switch, Latching Sensing	1
17	9550-169-003	Shield, Switch	3
18	9545-020-001	Screw	2
18	8640-401-001	Nut, Twin	1
19	9539-461-007	Switch, Locking Sensing	2
20	9008-006-002	Actuator, Switch	1
21	9545-020-003	Screw 4-40x11/8"	2
21	8640-401-001	Nut, Twin	1
22	9451-181-004	Pin, Dowel	1
*	9552-037-001	Shim, Door Lock, Thin	AR
*	9552-037-002	Shim, Door Lock, Thick	AR
*	9545-018-014	Screw, Lock mtg 1/4-20x3/4	3
*	8641-582-007	Lockwasher	3
36	9922-011-001	Solenoid Ass'y, Door Locking includes (23 thru 32)	1
23	9029-073-001	Bracket, Solenoid	1
24	9985-169-001	Bracket Assy, Solenoid Slide	1
25	9536-074-001	Solenoid 120V,60HZ	1
26	9545-008-001	Screw, Solenoid Mtg	4
27	9540-033-002	Stop, Door Lock Solenoid	1
28	9545-061-001	Screw, Special Shoulder	1
28	8640-411-003	Nut, Keps #6	1
29	9586-001-001	Thermoactuator 120V	2
30	9545-031-011	Screw	4
31	9538-157-004	Spacer, Plastic	1
31	9538-166-004	Spacer, Metal	1
31	9545-010-001	Screw, Cross Recessed 8-32x3/4	1
31	8640-412-005	Nut, Keps #8-32	1
32	9545-044-003	Screw, Hx 6-32x3/16	3
*	8640-412-005	Nut, Sol. Brkt to Control Panel	3
35	9497-225-007	Rod, Pull- Solenoid to Lock	1

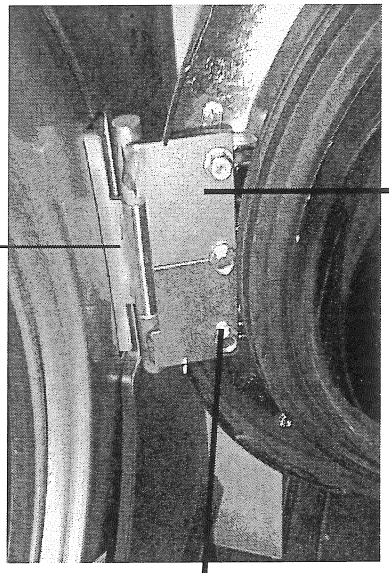
* Not Illustrated

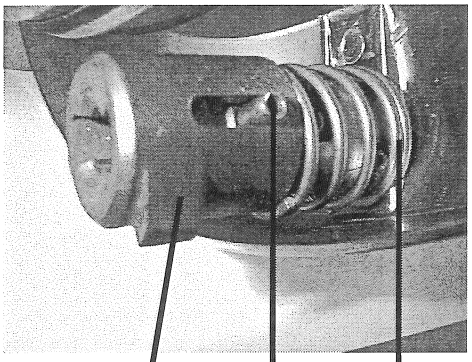
LOADING DOOR GROUP

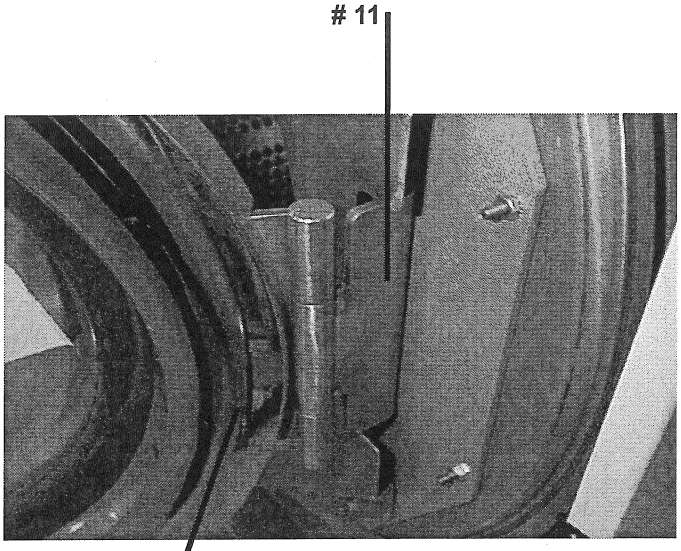
180‘ DOOR

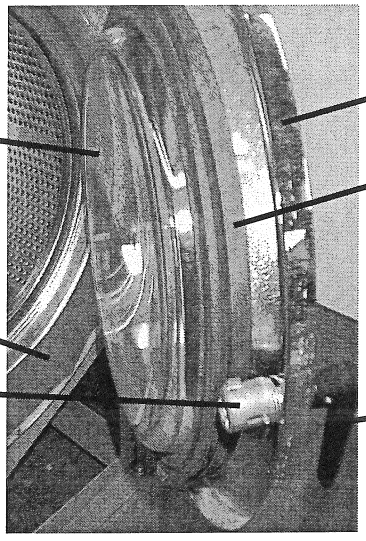
KEY	PART NUMBER	DESCRIPTION	
*	9960-274-004	Loading Door, Complete (includes #1thru #10)	.1
1	9487-265-002	Loading Door Ring 180 degree.....	.1
2	9206-419-001	Gasket, Loading Door.....	1
3	9635-016-001	Window, Loading Door.....	.1
4	9913-134-003	Shaft Assy. Locking (includes #5 thru #8). see below.....	1
5	9537-195-002	Shaft, Door Locking.....	.1
6	9095-040-001	Cam, Locking.....	1
7	9451-181-004	Pin, Groove (1 1/4).....	.1
8	9451-181-005	Pin, Groove (3/4).....	1
9	9534-360-002	Spring, Lock Cam	1
10	9244-080-003	Handle, Door	.1
17	9451-181-006	Roll Pin, Door Handle (groove)	1
11	9955-030-001	Hinge Assy, Loading Door (mounts to tub front).....	.1
*	9545-014-009	Screw, Hinge Mtg 5/16-18x34.....	3
*	8641-582-009	Lockwasher.....	3
*	9552-036-001	Shim, Loading Door Hinge, Thin.....	.AR
*	9552-036-002	Shim, Loading Door Hinge, Thick.....	.AR
12	9845-005-001	Top, Loading Door Leaf Hinge.....	1
13	9845-005-002	Bottom, Loading Door Leaf Hinge	1
16	9545-056-002	Screw, Loading Door Mtg Thrdfrm 5/16x 5/8.....	3
15	9487-254-002	Ring, Masking	1
*	8640-413-002	Nut.....	.4
*	9059-063-002	Band Edge Protector	.1

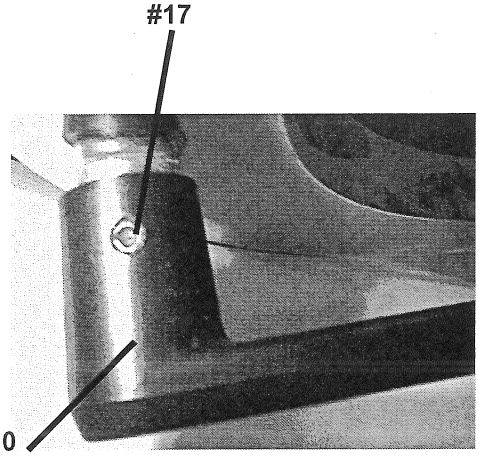


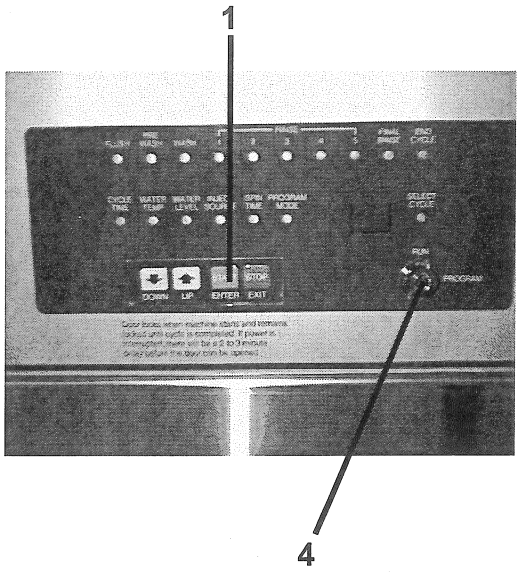

11
12
16

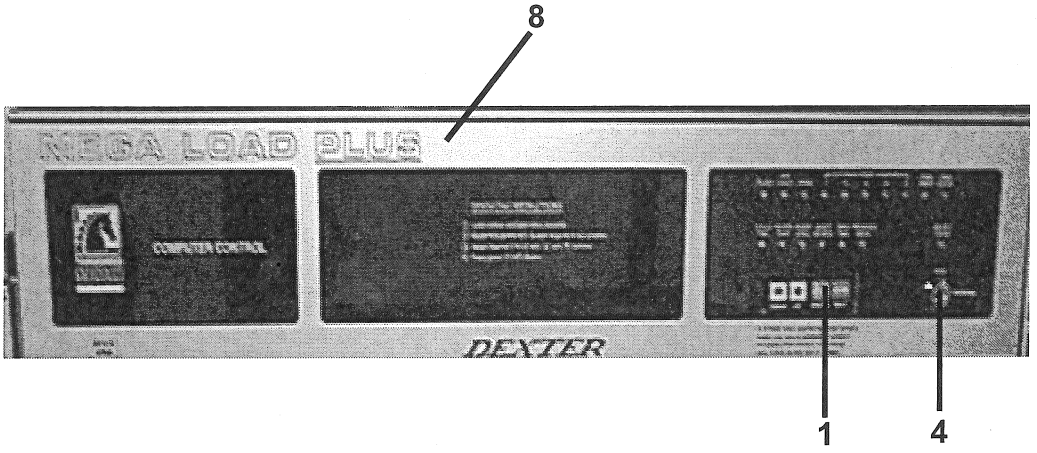

6
7
9

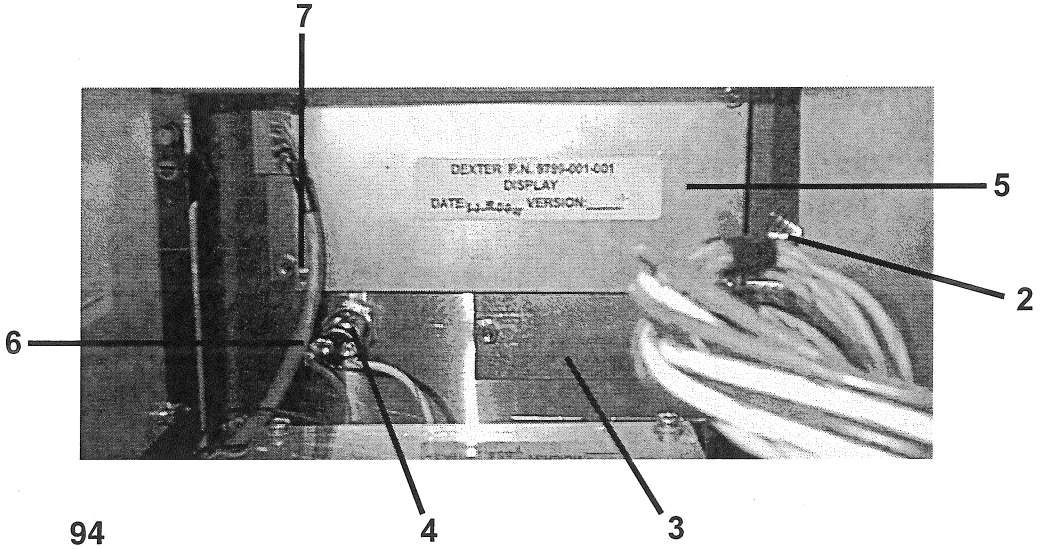

11
#1


3
15
6
9


#17
2
10
10


1
4
DOWN
UP
ENTER
EXIT
PROGRAM


8
MEGA LOAD PLUS
COMPUTER CONTROL
DEXTER
1
4


7
DEXTER P.N. 9700-001-001
DISPLAY
DATE VERSION
5
2
6
4
3

CONTROL PANEL GROUP

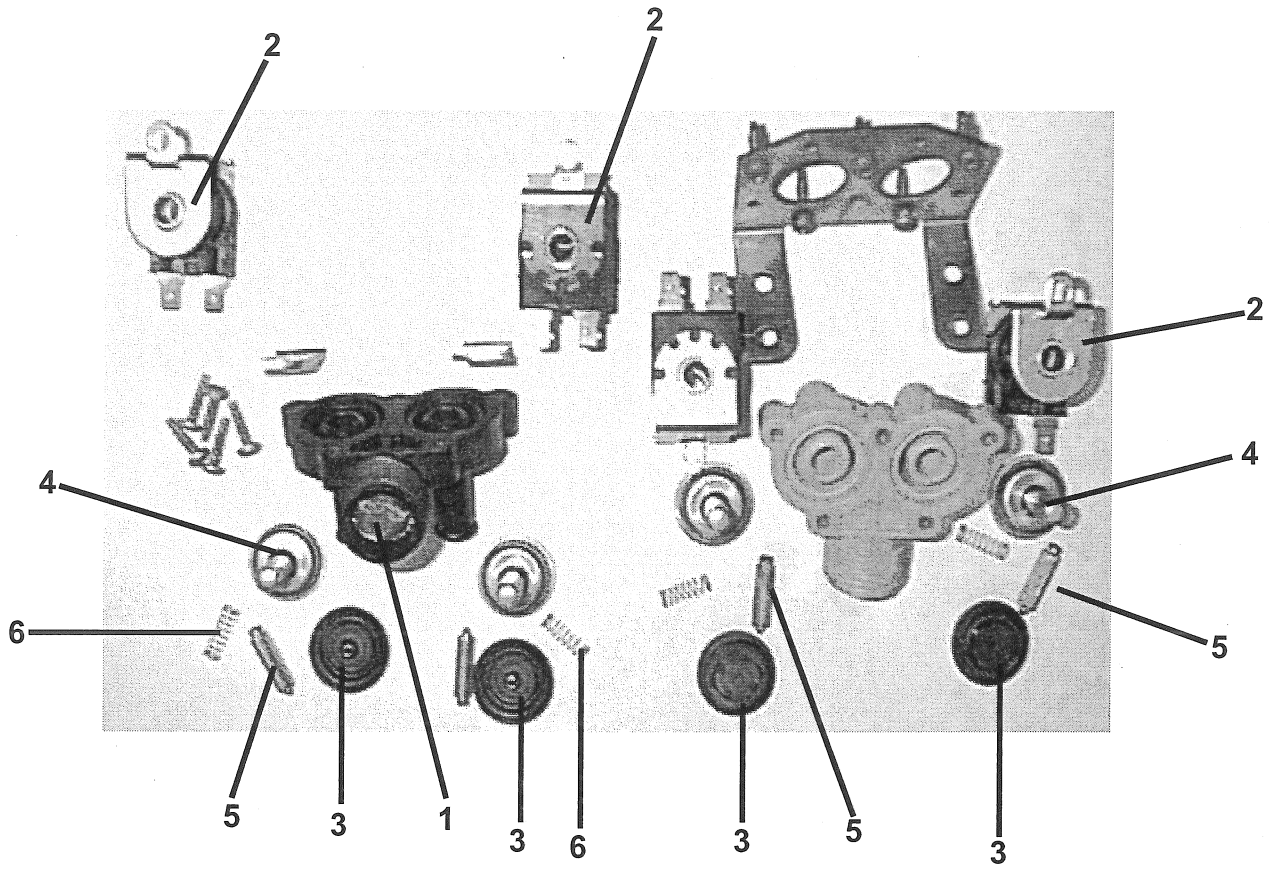
Key	Part Number	Description	
1	9801-061-001	Switch Ass'y, Membrane	1
2	9627-700-001	Wiring Harness, Membrane	1
3	9452-637-001	Plate, Membrane Switch	1
4	8650-024-001	Lock, Key (Switch)	1
*	9627-703-001	Wiring Harness, Key Switch	1
5	9799-001-001	Display Ass'y, Printed Circuit Board	1
6	9627-705-001	Wiring Harness, CPU To Display	1
7	8640-411-003	Nut, Mtg 6-32	7
8	9412-093-002	Nameplate MEGALOAD PLUS	1

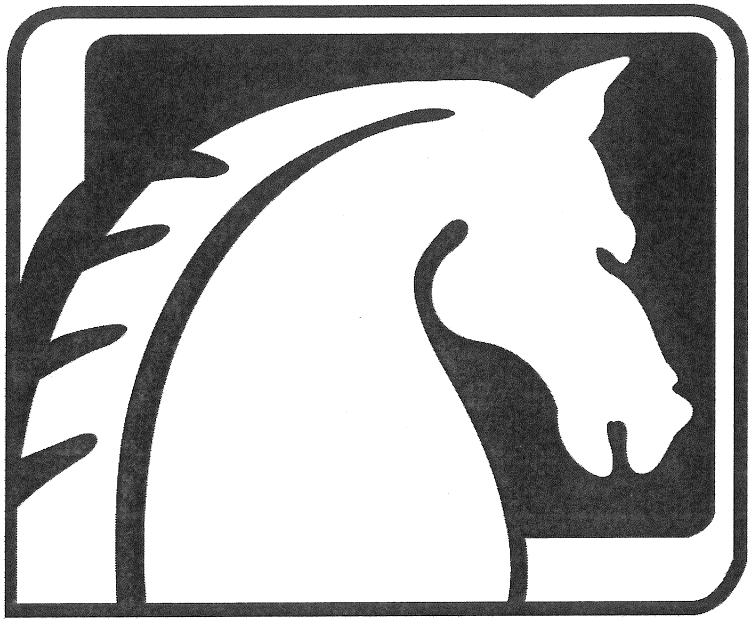
* Not Illustrated

WATER INLET VALVE BREAKDOWN

Key	Part Number	Description	
*	9379-183-003	Valve, Water Inlet Blue (includes #1 thru #6	1
*	9379-183-004	Valve, Water Inlet Black (includes #1 thru #6)	1
1	9555-056-001	Screen, Inlet	2
2	9089-017-001	Coil Assy., 120 V	2
3	9118-049-001	Diaphragm	2
4	9211-021-002	Guide, Solenoid	2
5	9015-008-001	Armature	2
6	9534-298-001	Spring, Armature	2
*	9545-008-026	Screw, Valve Mtg	2

* Not Illustrated

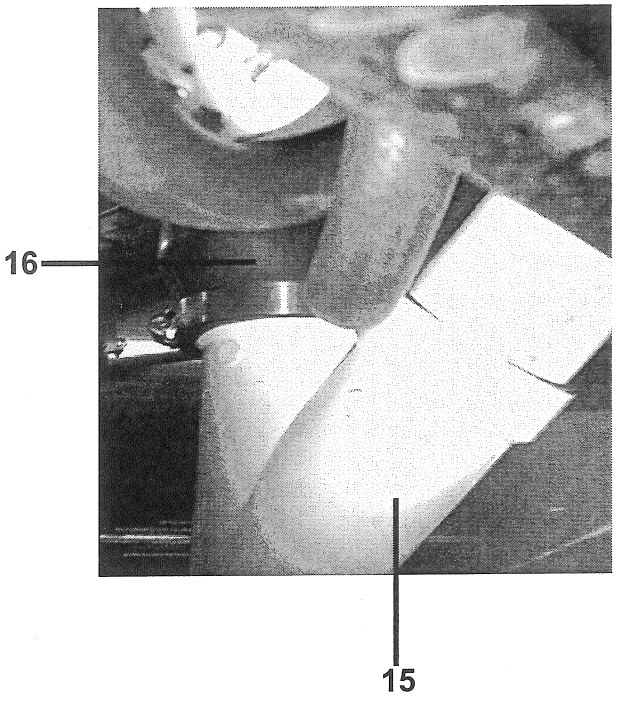


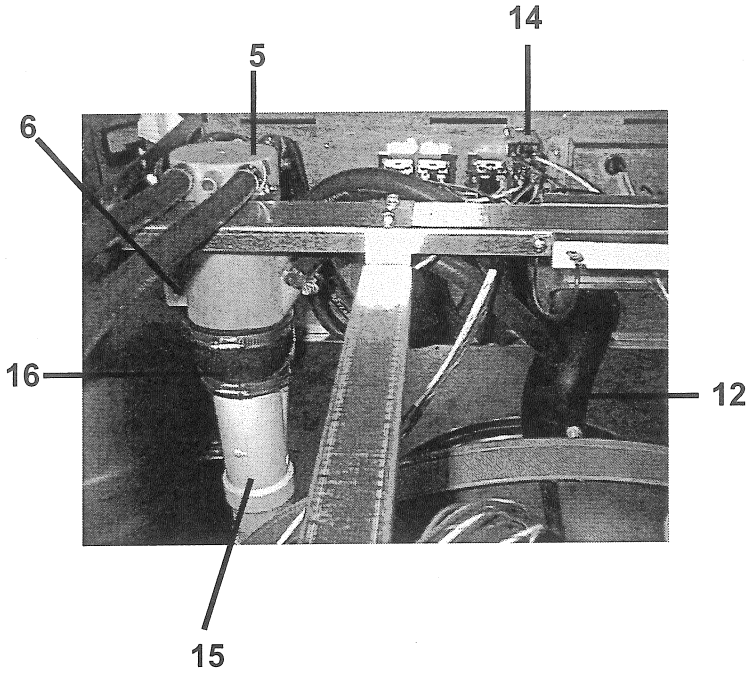


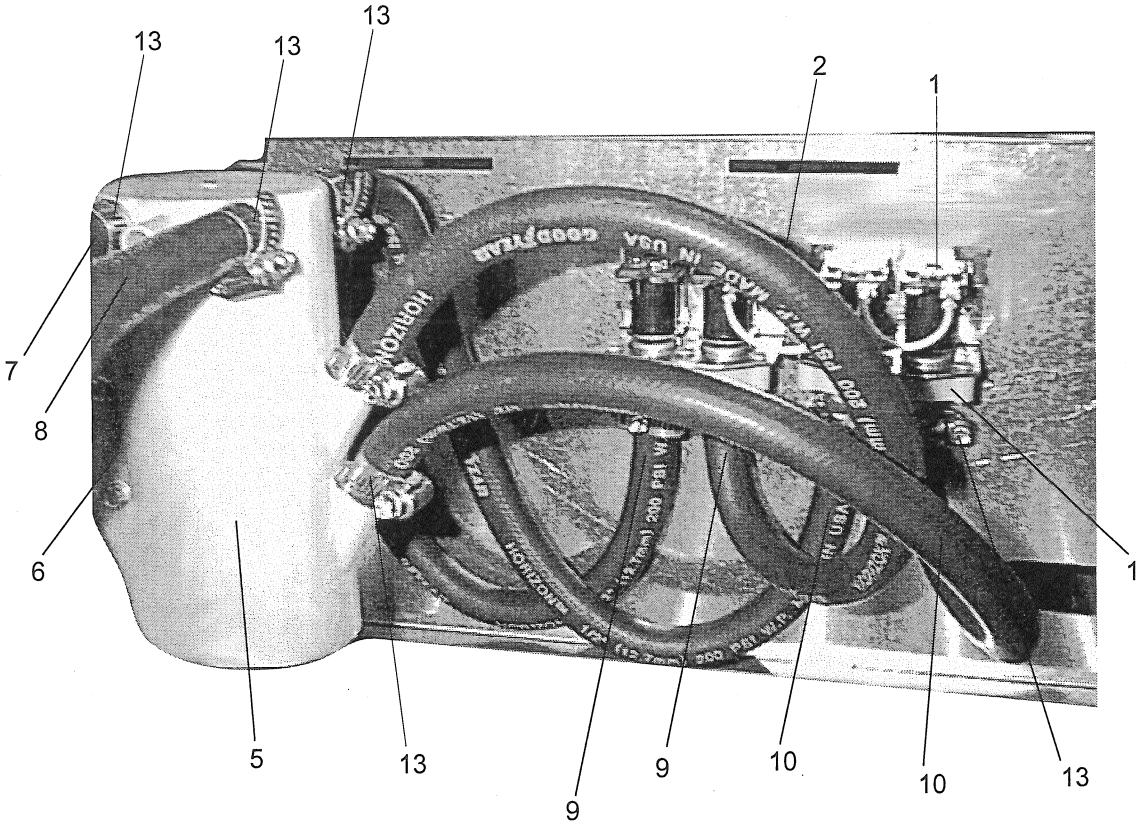
WATER INLET GROUP

Key	Part Number	Description	
1	9379-183-003	Valve, Water Inlet (blue)	1
		(see Water Inlet Valve Breakdown for individual parts)	
2	9379-183-004	Valve, Water Inlet (black) used for hot water	1
*	9545-008-026	Screw, Valve Mtg	4
*	8640-399-009	Nut, Spring U type	4
*	9208-049-001	Guard, Water Valve Terminal	2
*	9545-008-026	Screw	4
5	9610-001-001	Vacuum Breaker	1
*	9029-069-001	Bracket, Vacuum Breaker	1
6	9545-008-026	Screw	4
16	9242-461-001	Hose, Injector Assy to Vac. Breaker & Inj to Tub	2
7	9242-453-018	Hose, Vac. Brkr. to Wash Dis 29"	1
8	9242-453-019	Hose, Vac. Brkr. to Rinse Dis 26"	1
9	9242-453-020	Hose, Hot Valve to Vac. Brkr 18"	2
10	9242-453-020	Hose, Cold Valve to Vac. Brkr 18"	2
11	9242-450-001	Hose, Soap Dispenser to Tub	1
12	9242-463-004	Hose, Overflow 13"	1
13	8654-117-015	Clamp, Hose-Worm 1"	12
*	8654-117-014	Clamp Hose at drain valve	8
*	8654-117-008	Clamp Hose	3
14	5198-211-004	Circuit Breaker	1
15	9883-005-001	PVC Injector Assy, Soap	1

* Not Illustrated


16
15

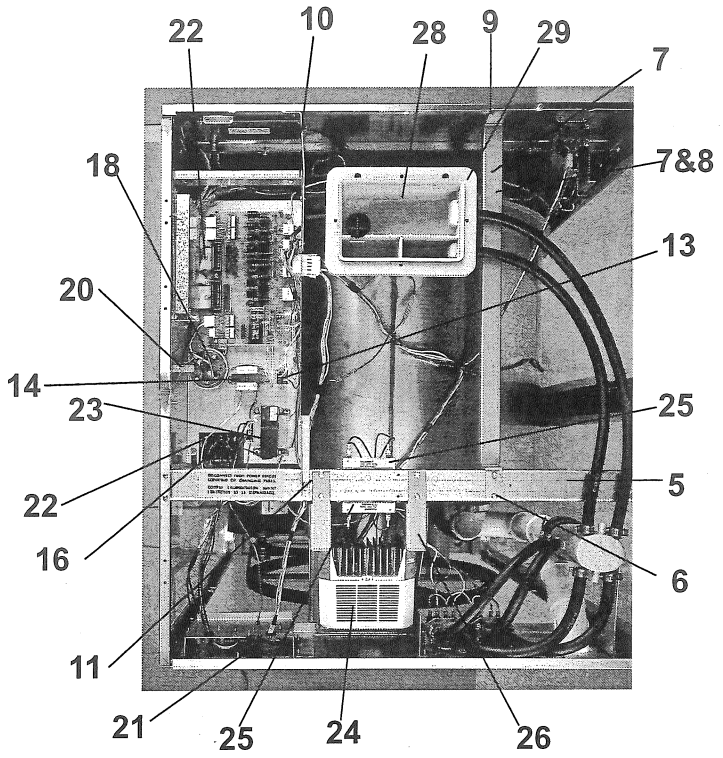

14
5
6
16
12
15

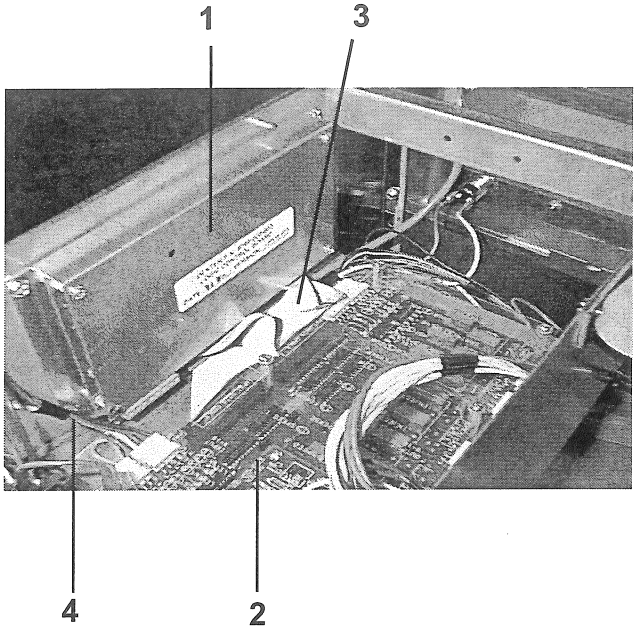

13
13
13
2
1
7
8
6
1
5
13
9
9
10
10
13

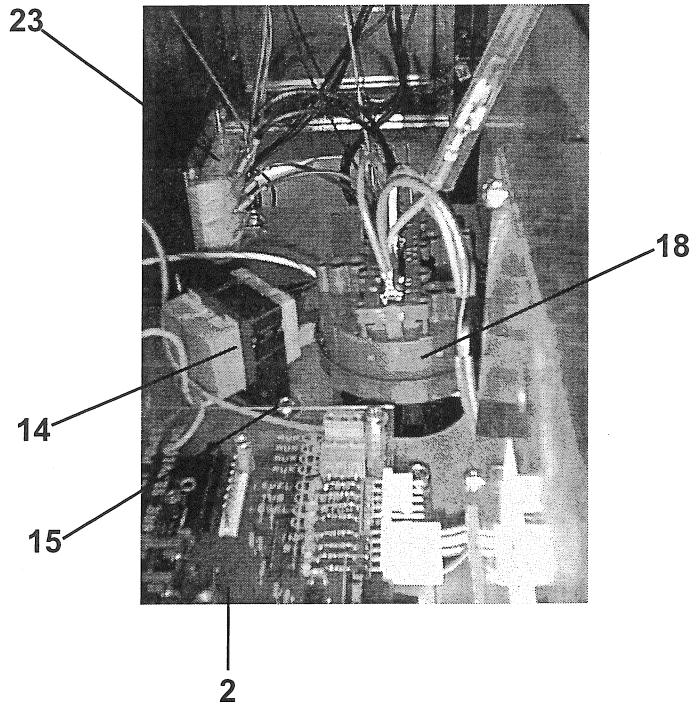
ELECTRICAL COMPONENTS TOP COMPARTMENT

Key	Part Number	Description	
1	9799-002-003	PC Board Ass'y, CPU	1
2	9799-003-001	PC Board Ass'y, Input/Output	1
3	9500-001-001	Ribbon Cable	2
4	9627-706-001	Wiring Harness, CPU to I/O	1
5	9081-110-001	Channel, Trough Mtg	1
6	9545-008-023	Screws	4
7	9081-108-001	Channel, Dispenser Support	1
8	9545-008-026	Screw Hex Head 10Bx 1/2"	2
9	9545-008-001	Screw, To Cntrl Panel 10Bx1/4"	2
10	9839-014-001	Trough Assy, Controls Mtg	1
*	9545-008-001	Screw 10Bx1/4"	4
11	9029-061-001	Bracket, Support- Trough	1
12	9545-008-001	Screw 10Bx1/4"	3
13	5192-285-003	Run Relay	1
*	8220-001-442	Diode Ass'y	1
14	8711-003-001	Transformer, 120/12v	1
15	9545-031-003	Screw 6Bx3/8"	2
16	9897-033-002	Terminal Block, Power	1
*	9558-025-001	Strip, Terminal Marker	1
17	9545-045-001	Screw, 8Bx 1/4"Mtg	2
18	9539-488-001	Switch, Pressure (Used after serial number # 430010)	1
*	9732-173-001	Switch Pressure (Before serial number # 430010)	
19	9545-031-003	Screw 6Bx3/8	1
20	9029-071-001	Bracket, Pressure Switch Mounting	1
*	9545-045-001	Screw, Mtg 8Bx1/4	2
21	5198-211-004	Circuit Breaker, 1.5 amp	1
22	8652-134-001	Lug, Grounding	1
*	8639-621-007	Screw, Green 10-32x1/2"Mtg	1
*	8641-582-006	Lockwasher	1
23	8711-004-001	Transformer, Control	1
*	9545-008-026	Screw 10Bx1/2"	3
*	8641-582-006	Lockwasher	3
24	9375-001-002	Drive, VF-120G for AFH models original harness	*
24	9375-003-004	Drive, VF - 140G for AFHX modelsoriginal harness	*
*	9732-184-001	DELTA DRIVE VFD 120G AFH MODELS w/ new harness	*
*	9732-185-001	DELTA DRIVE VFD 140G AFH MODELS w/ new harness	*
*	9732-167-001	DELTA DRIVE REPLACEMENT FOR ALTIVAR 16 120G AFH	*
*	9732-168-001	DELTA DRIVE REPLACEMENT FOR ALTIVAR 16 140G AFHX	*
*	9545-008-026	Screw	4
*	8640-413-002	Nut, Hex	4
25	9483-004-003	Resistor, Braking 160 ohms used for Delta Drives only	2
*	9483-004-001	Resistor, Braking 100 ohms used for Altivar 16 Drives only	2
*	9545-012-003	Screw 10-32x1/2 CHR	4
*	8640-413-002	Nut 10-32 UNF 2B	4
26	9029-115-001	Bracket Drive Mounting 2 pieces	1
*	8640-413-002	Nut 10-32 UNF 2B	6
28	9732-108-002	Soap Dispenser kit,	1
29	9206-416-001	Gasket, Dispenser	1

* Not Illustrated


22
10
28
9
29
7
18
7&8
13
20
14
23
25
22
5
16
6
11
21
25
24
26


1
3
4
2


23
18
14
15
2

TERMINAL BLOCKS

Key	Part Number	Description	
*	9897-032-002	Terminal Block, Injector	1
*	9558-028-001	Terminal Marker Strip	1
*	9545-053-002	Screw	2
*	9897-033-002	Terminal Block, Main Power	1
*	9558-025-001	Terminal Marker Strip	1
*	9545-031-010	Screw	2
*	8652-134-001	Terminal Lug, Ground	1
*	8639-621-007	Screw	1
*	8641-582-006	Lockwasher	1
*	8652-130-037	Terminal, Grounding	1
*	8639-045-002	Screw	1
*	8641-582-006	Lockwasher	1
*	8652-133-002	Terminal	1

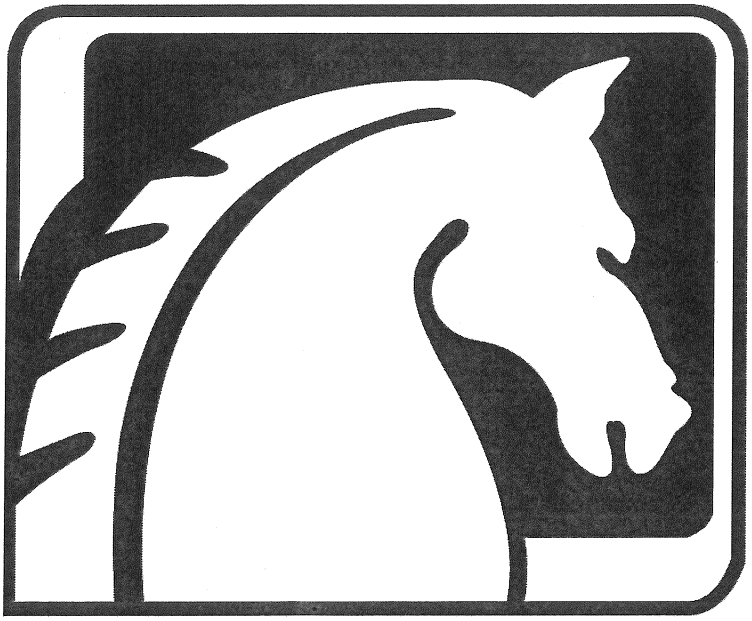
LABELS

Key	Part Number	Description	
*	8502-624-003	Label, Warning Door Opening	1
*	8502-614-004	Label, High Voltage	2
*	8502-647-002	Label, Connections- Injector	1
*	8502-649-001	Label, Connections- Electrical	1
*	8502-619-004	Label, Fusing & Installation	1
*	8502-639-001	Label, Warning	
*	8502-650-001	Label, Instructions, Dispenser	1
*	8502-653-001	Label, Instructions, Installer	1
*	8502-666-001	Label Injector Assembly	1
*	8507-258-001	Instructions Control Transformer	1
*	8507-268-001	Instructions Chemical Hose Installation	1
*	8507-275-001	Instructions Spin Direction	1
*	8514-016-003	Owners, Booklet	1
*	9345-887-001	Wiring Label Schematic	1

WIRING HARNESS GROUP

Key	Part Number	Description	
*	9627-747-001	Wiring Harness, Power Term Blk	1
*	9627-697-001	Wiring Harness, Trough, 115VAC	1
*	9627-698-001	Wiring Harness, 115VAC	1
*	9627-700-001	Wiring Harness, Membrane Switch	1
*	9627-703-001	Wiring Harness, Doorlock/Keylock	1
*	9627-810-001	Wiring Harness, VFD Control Shield RED	1
*	9627-811-001	Wiring Harness, Control VFDrive	1
*	9627-704-001	Wiring Harness, Pressure Switch	1
*	9627-705-001	Wiring Harness, CPU to Display	1
*	9627-706-001	Wiring Harness, CPU to I/O	1
*	8654-125-005	Clamp, Cable- 3/16 Dia	1
*	8220-001-282	Wire Assembly Red 20"	1
*	8220-001-427	Wire Assembly Violet 7"/12"	1
*	8220-001-442	Wire Assembly DIODE	1
*	8220-090-001	Wire Assembly Jumper Wht./ Red	1
*	8220-104-001	Wire Assembly Jumper Blk.	2

* Not Illustrated



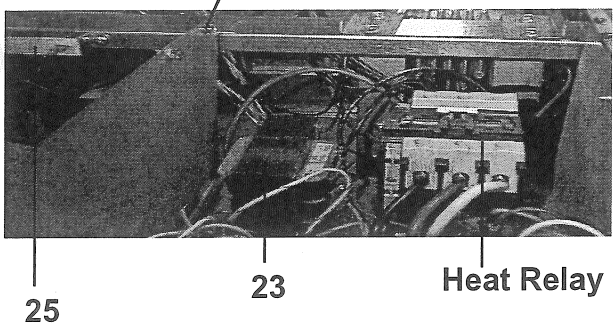
Section7

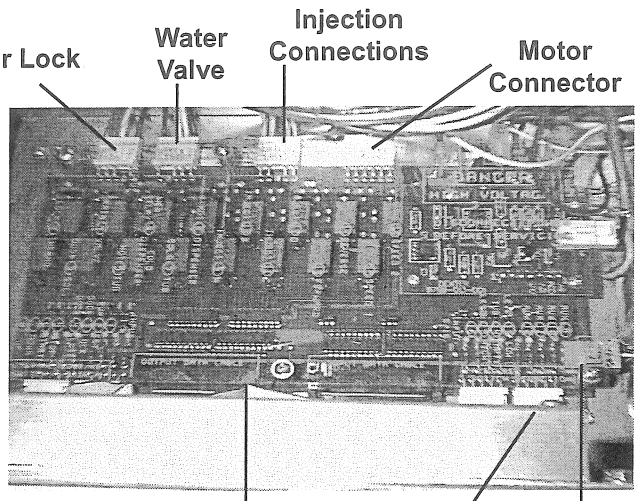
Electeric Heated Parts Data

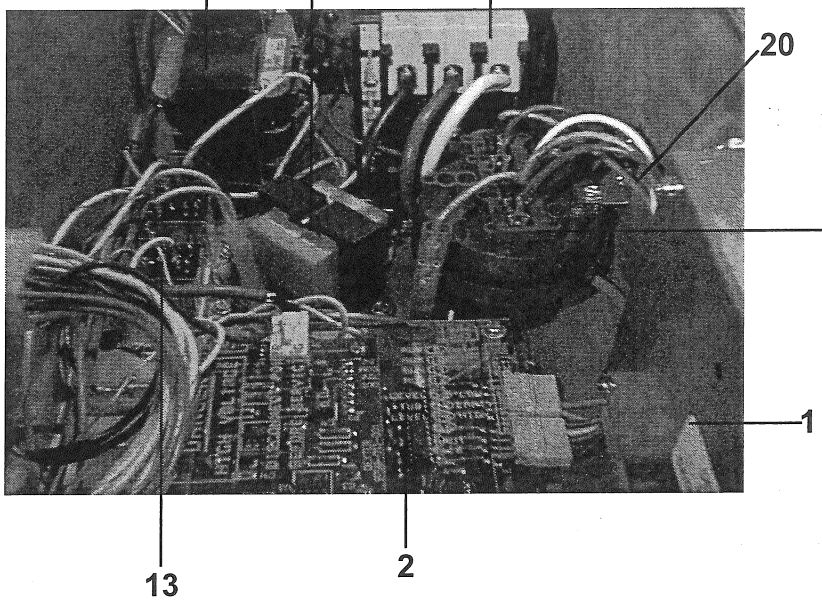
ELECTRICAL HEATED WASHER COMPONENTS TOP

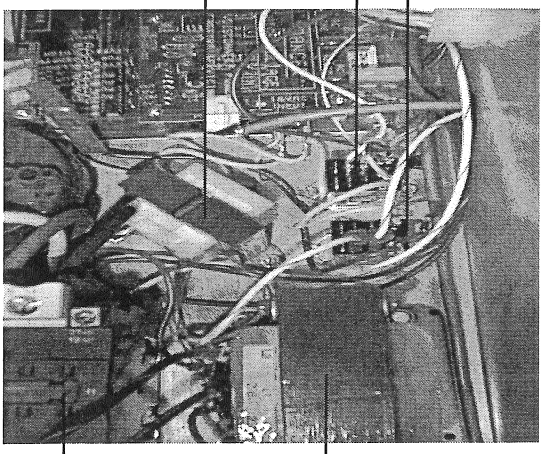
Key	Part Number	Description	
1	9799-002-003	PC Board Ass'y, CPU ****** READ BELOW	1
2	9799-003-001	PC Board Ass'y, Input/Output	1
*	9799-013-001	PC Board Assembly -Temperature Control	1
3	9500-001-001	Ribbon Cable	2
4	9627-706-001	Wiring Harness, CPU to I/O	1
5	9081-110-001	Channel, Trough Mtg	1
6	9545-008-023	Screws	4
7	9081-108-001	Channel, Dispenser Support	1
8	9545-008-026	Screw	2
9	9545-008-001	Screw, To Cntrl Panel	2
10	9839-014-001	Trough Assy, Controls Mtg	1
*	9545-008-001	Screw	4
11	9029-061-001	Bracket, Support- Trough	1
12	9545-008-001	Screw	3
13	5192-285-003	Run Relay (R-1) and level relay	2
*	5192-291-001	Heat Relay 60 amp	1
*	8220-001-442	Diode Ass'y	2
14	8711-003-001	Transformer, 120/12V	1
15	9545-031-003	Screw 6Bx3/8"	2
16	9897-033-002	Terminal Block, Power	1
*	9558-025-001	Strip, Terminal Marker	1
17	9545-045-001	Screw, 8Bx 1/4"Mtg	2
18	9539-488-001	Switch, Pressure	1
19	9545-031-003	Screw 6Bx3/8	1
20	9029-071-001	Bracket, Pressure Switch Mounting	1
*	9545-045-001	Screw, Mtg 8Bx1/4	2
21	5198-211-004	Circuit Breaker, 1.5 amp	1
22	8652-134-001	Lug, Grounding	1
*	8639-621-007	Screw, Green 10-32x1/2"Mtg	1
*	8641-582-006	Lockwasher	1
23	8711-004-001	Transformer, Control	1
*	9545-008-026	Screw 10Bx1/2"	3
*	8641-582-006	Lockwasher	3
*	9375-003-004	Drive, VF - 140G for AFHXH models	*
*	9545-008-026	Screw	4
*	8640-413-002	Nut, Hex	4
*	9483-004-003	Resistor, Braking	2
*	9545-012-003	Screw 10-32x1/2 CHR	4
*	8640-413-002	Nut 10-32 UNF 2B	4
26	9029-115-001	Bracket Drive Mounting 2 pieces	1
*	8640-413-002	Nut 10-32 UNF 2B	6
28	9732-108-002	Soap Dispenser kit,	1
29	9206-416-001	Gasket, Dispenser	1

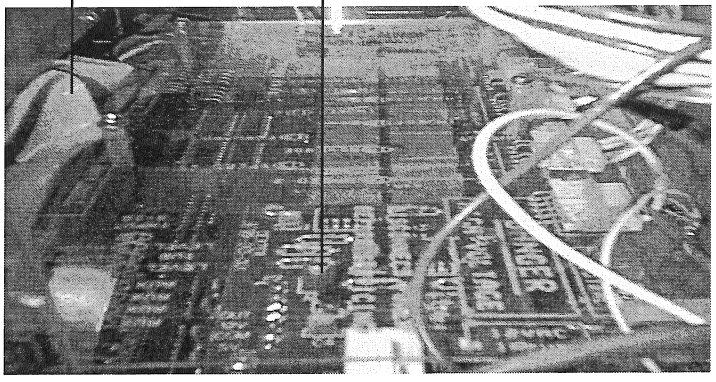
* Not Illustrated

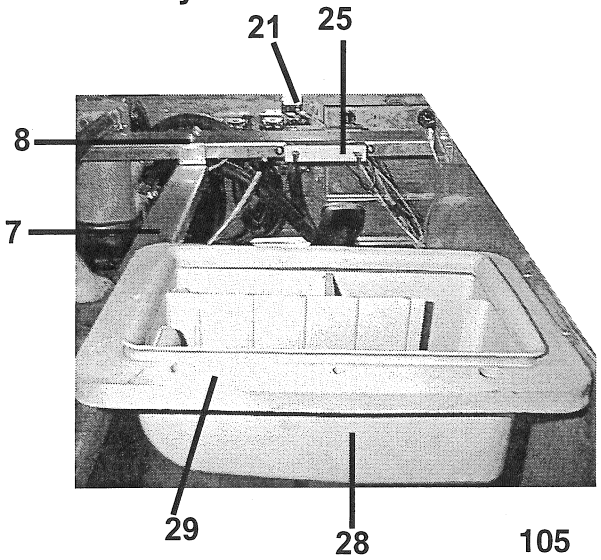

9
25
23
Heat Relay


Door Lock
Water Valve
Injection Connections
Motor Connector
3
Level Switch Wire Harness
4
Wire Harness to CPU


23
14
Heat Relay
20
18
1
13
2


14
13
13
Heat Relay
23

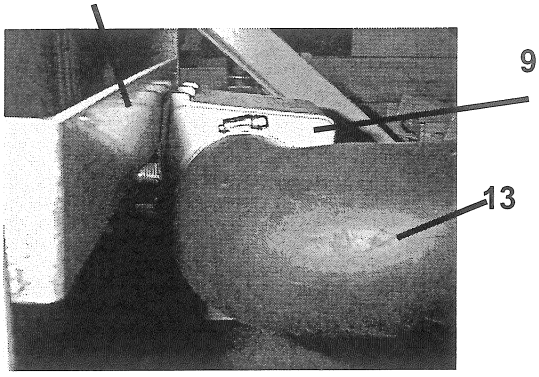

25
TEMPERATURE CALIBRATION ADJUSTMENT

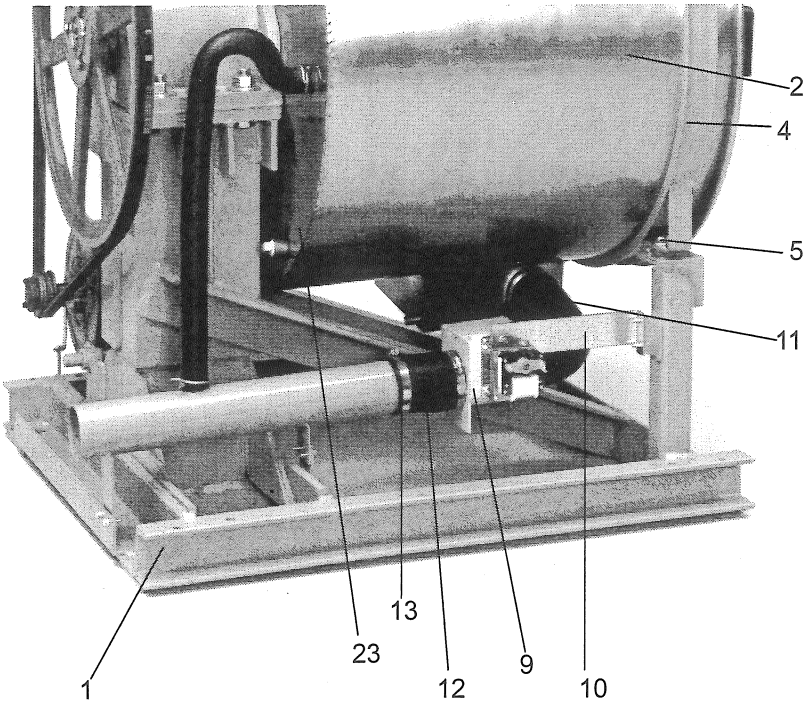

21
25
8
7
29
28

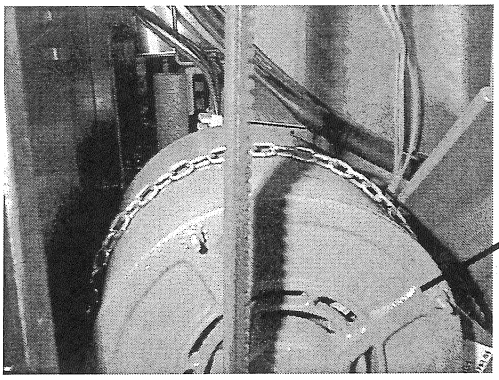
ELECTRICAL HEATED CHASSIS AND DRAIN GROUP

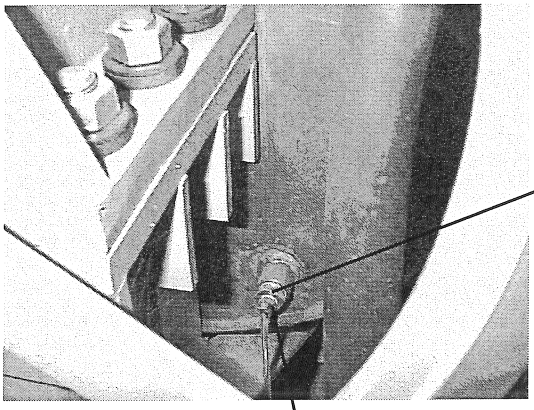
Key	Part Number	Description	
1	9945-105-002	Base Assy, Frame	1
2	9930-138-002	Tub Assy	1
*	9869-009-003	Tub & Cylinder Assembly Complete with heat	1
*	9870-087-001	Heater Assembly	9
3	9848-116-001	Cylinder Assembly Complete	1
4	9950-053-002	Ring Assy, Tub Mtg-Front	2
5	9545-017-013	Screw, (outer tub clamping band) 1/2-14x2 Grade5	1
5	8640-417-002	Nut	1
5	8641-582-018	Lockwasher	1
*	9950-055-001	Clamp Ring (clamping tubfront)	1
*	9545-029-009	Screw, HxSocket 3/8-16x3	1
*	8640-415-001	Nut,Hx 3/8-16	1
9	9379-187-001	Valve, Drain (see drain valve breakdown separate page)	1
10	9029-126-001	Bracket, Drain Valve	1
*	9545-030-002	Screw, Valve to Bracket & Bracket to tube	4
*	9915-120-002	Tube Assy, Drain	1
*	9545-030-002	Screw, Tube Mtg	2
*	9242-459-002	Hose, Tub to Drain Valve	1
14	9242-457-001	Hose, Drain Valve to Tube	1
*	8654-117-014	Clamp, Hose	4
15	9376-298-001	Motor Drive Magnatek	1
*	9497-222-004	Rod, Motor Mtg	1
*	9076-052-002	Collar, Shaft	4
*	9545-029-009	Screw, Motor Mtg Rod	1
18	8641-582-003	Lockwasher	1
19	9453-175-002	Pulley, Motor Driver	1
*	9545-028-015	Set Screw, Square Head	2
20	9040-079-002	Belt, Drive	1
*	9552-038-001	Shim, Support Assembly	AR
*	9081-109-001	Channel, Rear	1
22	9732-108-002	Dispenser,	1
*	9206-416-001	Gasket, Dispenser	1
*	9242-450-001	Hose, Dispenser to Tub	1
*	8654-117-008	Clamp, Dispenser Hose	2
24	9501-005-002	Sensor Assembly 10 K at rear of tub	1
25	9870-087-001	Heater Assembly 9 heaters included	9
26	8615-104-043	Bushing Reducer Hex	1
27	9074-286-001	Cover (Heater terminals)	1
28	8652-133-002	Heater Terminal Block	1
*	9456-048-001	Heater Sump Plug (For removed Heater Assembly and keep operational)	

* Not Illustrated



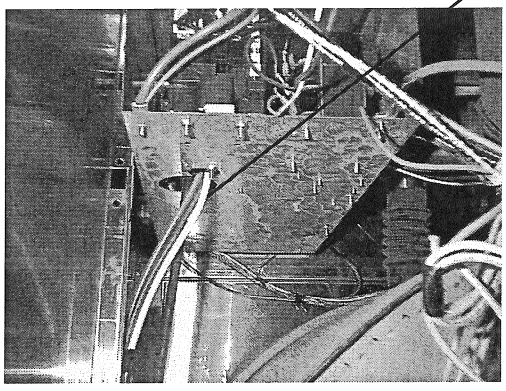


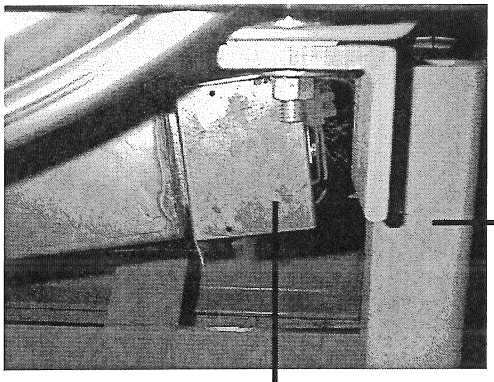




Wire Harness Main

Wire From Heat Relay
to Heater
Wire Harness
Power Term Blk.





ELECTRICAL HEATED TERMINAL BLOCKS

Key	Part Number	Description	
*	9897-033-002	Terminal Block, power	2
*	9558-025-001	Terminal Marker Strip power	1
*	9545-031-010	Screw	2
*	9897-032-002	Terminal Block, Injector	1
*	9558-028-001	Terminal Marker Strip 120v	1
*	9545-053-002	Screw	2

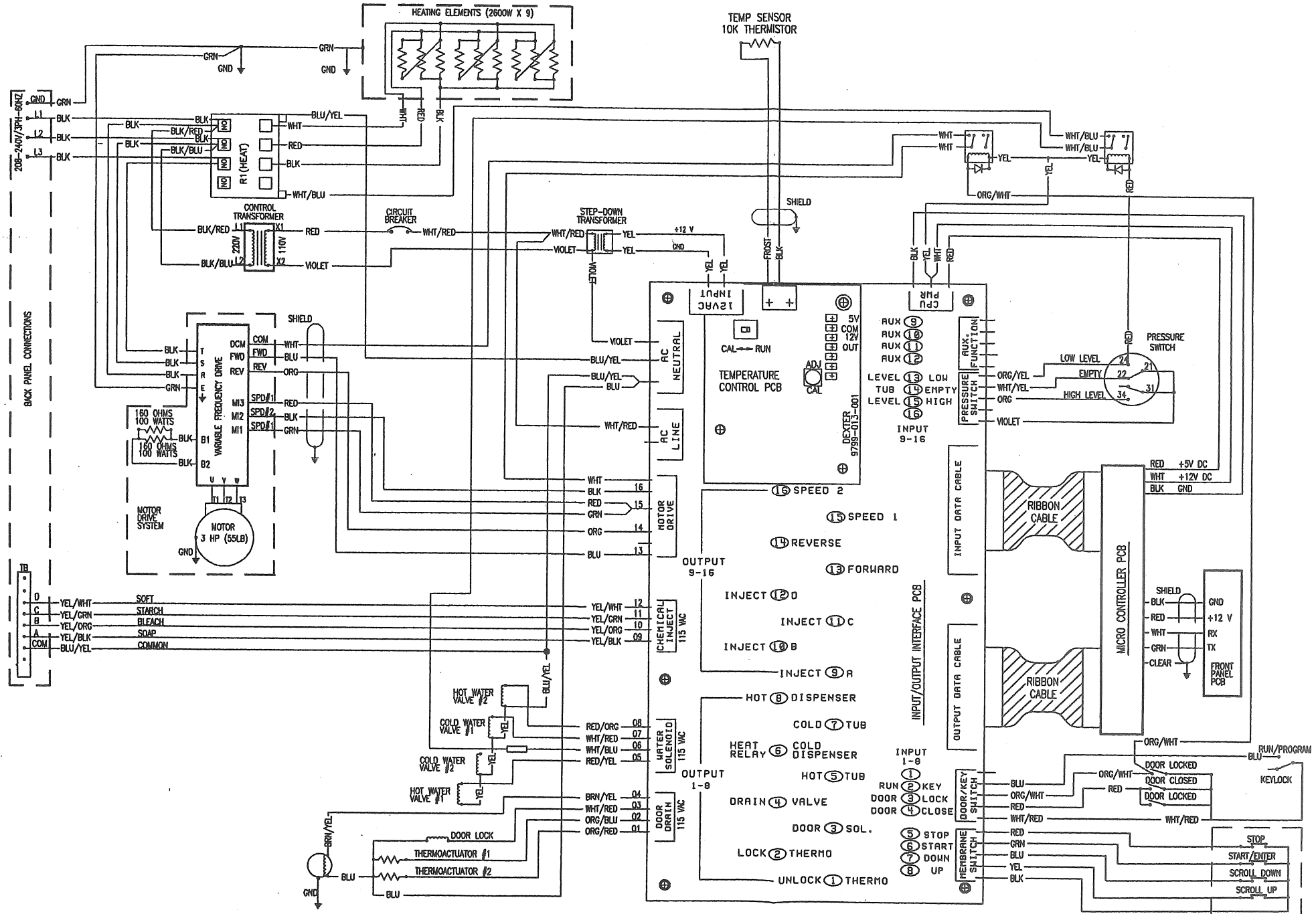
LABELS

Key	Part Number	Description	
*	8502-624-003	Label, Warning Door Opening	1
*	8502-614-004	Label, High Voltage	2
*	8502-647-002	Label, Connections- Injector	1
*	8502-649-001	Label, Connections- Electrical	1
*	8502-619-007	Label, Fusing & Installation	1
*	8502-639-001	Label, Warning	1
*	8502-650-001	Label, Instruction Dispenser	1
*	8502-653-001	Label, Installer Instructions	1
*	8502-666-001	Label, Injector assembly	1
*	8507-268-001	Instructions Chemical hose installation	1
*	8507-275-001	Instructions Spin Direction	1
*	8507-258-001	Instructions Control Transformer	1
*	8511-001-002	Label Quality	1
*	9345-786-004	Schematic/Wiring Diagram	1
*	8514-033-001	Owners Booklet	1

WIRING HARNESS GROUP

Key	Part Number	Description	
*	9627-748-001	Wiring Harness, Power Term Blk	1
*	9627-755-001	Wiring Harness, Main Heater Assembly	1
*	9627-762-001	Wiring Harness, Temp Sensor	1
*	9627-811-001	Wiring Harness, Control VFD Motor Drive	1
*	9627-697-001	Wiring Harness, Trough, 115VAC	1
*	9627-698-001	Wiring Harness, 115VAC	1
*	9627-810-001	Wiring Harness, VFD Control Shield (RED)	1
*	9627-704-001	Wiring Harness, Pressure Switch	1
*	9627-703-001	Wiring Harness Door /Lock -Keylock	1
*	9627-705-001	Wiring Harness CPU to Display	1
*	9627-700-001	Wiring Harness Membrane Switch	1
*	9627-706-001	Wiring CPU to I/O board	1
*	8654-125-005	Clamp, Cable- 3/16 Dia	1

* Not Illustrated



WIRING SCHEMATIC 208-240V/3PH,60 HZ

9345-786-004 (REV E) 55# COMPUTER WASHER W/HEAT OPTION

ELECTRICAL Operation

Programmed temperatures will be displayed in CENTIGRADE only.

The electric heaters will turn on when low water level has been obtained and actual temperature is less than programmed temperature.

While the heaters are engaged the wheel will pause 3 minutes between each forward/ reverse rotation. The wheel will resume normal operation when bath temperature is 5 degrees before the programmed temperature is reached.

Cycle countdown time display will stop while heaters are engaged.

Heaters will maintain temperature throughout heated baths and will engage when bath temperature drops below 3 degrees of programmed temperature.

Actual temperature may be displayed by pressing the start and down arrows simultaneously. The temperature light will be on whenever the temperature is being displayed and will continue to be displayed until the start button is pushed again to display time remaining.

Any temperature between 20 degrees and 90 degrees in 5 degree increments is programmable.

Any bath that has a programmed spin cycle will go through a short cool down bath before spinning if the actual bath temperature at the time of draining is above 65 degrees . This bath consists of filling tub to low level with WARM water while tumbling and then draining. This will continue until bath temperature is below 65 degrees

If machine stop button is pressed momentarily(soak condition) while the heaters are energized, the wheel will continue with the 3 minute pause between each forward / reverse rotation until the set temperature has been reached. The normal 15 minute pause between each forward/reverse rotation will then take place until the start button is pushed to resume the cycle.

Actual bath water temperatures will normally overshoot the set temperature by 1 degrees to 3 degrees . This is to assure set temperature will be maintained throughout a normal bath time of 10-20 minutes. The heaters will engage if the bath temperature drops below 3 degrees of set temperature.

ELECTRICAL PROGRAMMING

The heated bath is programmed in our water temperature selection portion of our microprocessor.
You will program a formula the same way as previously discussed in this manual except as follows: When you arrive at temperature selection portion of programming you will see the following choices :EE (tub empty), CC (cold), CH (warm), HH (hot), or any temperature between 20 degrees and 90 degrees in 5 degrees increments.
Use the up arrow and down arrow pad to set the water temperature desired (Centigrade) and then push the green start button to accept the change and then move to the next programming sequence.
Continue with any other cycle changes as previously discussed.
To exit the program mode and accept all changes press the red stop button while any one of the nine bath lights(top row of lights) are lit. The" Select cycle " light should be on. Turn the run/program key back to run position. If the program mode is exited incorrectly, the "Program" light will remain lit and the machine will remain in the program mode until the run/program key is turned back to the program position and the program is exited correctly.

ELECTRICAL FEATURES

When a numeric value for temperature is programmed for any bath the water valve selection to fill that bath is chosen as follows:

20 degrees - 35 degrees Centigrade	Cold valve only will be used
40 degrees - 60 degrees Centigrade	Cold and Hot Valve will be used
65 degrees - 90 degrees Centigrade	Hot valve only will be used

Machine will have 9 heating elements

Temperature control and display are operated with a temperature control circuit board on the I/O board, a thermistor sensor in the tub back, and a computer logic board (CPU).
Control voltage is 115 volt (60hz) or 24 volt (50hz) to heat relay.

Machine available in 208/240 volt 3 phase (60hz), 380/415 volt 3 phase (50hz) ONLY.
Optional Temperature control board can be added for non-heated machines to display temperatures and Steam option kit available . Steam valve will operate the same as described throughout except valve will operate in place of heat relay.

ELECTRICAL TROUBLESHOOTING

If the heater relay does not engage in a heated bath:

Check the calibration switch is set to run position

Check that I/O board jumpers are changed to the level side , Jumper must start closest to level input light and open pin will be towards door input lights.

Check actual water temperature is less than programmed temperature

Check the temperature sensor for open circuit or shorted

Check low level contacts on the pressure switch not closing

Check low level safety relay contacts not closing or bad contacts

Check low level safety relay coil

Check heater relay contacts not closing or bad contacts

Check wiring between temperature board and sensor at all connectors and inspect wires for any damage.

If temperature control board is removed, the programmed temperature value is retained in all baths and the water valves to fill that bath are chosen based on the programmed temperature as described on previous feature page.

ELECTRICAL CALIBRATION

The calibration should be checked whenever a temperature sensor has been replaced or if actual water temperature varies significantly from the display.
To calibrate the temperature control board go to step # 15 of the diagnostic cycle(#31) .Actual temperature will be shown in display. On the temperature control board move the cal- run switch to the calibrate position. The factory set calibration temperature of 98 degrees C should show on the display after a few seconds. Now turn the adjusting screw clockwise to increase calibration point and display temperature or counterclockwise to decrease calibration point and display temperature. The display is updated every 5 seconds so make adjustments in very small increments. Be sure to allow ample time for display to respond to updates. If adjustments of higher than 100 degrees C only the last two digits will be displayed.

ELECTRICAL HEATED WASHER SCHEMATICS

208-240 volt 3 phase (60hz) 308-415 volt 3 phase (50hz) power is supplied on L-1, L-2,L-3 to the normally open contacts of the heat relay and then to the six heating elements. The elements are wired in star or wye on 50HZ models. A delta configuration is used on 60HZ. models. There is a potential 220 volts across each element for both models 60HZ or 50HZ.
Control voltage 115 vac (60hz) or 24 vac (50hz) is used to power the heat relay coil and will close the heat relay contacts. The supply voltage will initiate from the I/O board Terminal number #6 (wht/blue wire) through the low-level safety relay contacts and then to the heat relay operating coil when heat is being called for by temperature board. The neutral will be supplied from the (blu/yel) wire connected to AC neutral terminal on the I/O board. The low level safety relay coil will operate when the washer has filled to a level, and gets a signal from the pressure switch. That signal will be 24 VDC and comes from the CPU board and through the pressure switch. With the low level safety relay contacts now switched and closed , voltage now will pass to the heat relay operating coil, and allow main 3 phase voltage across the heating elements.

Control voltage 115 vac (60hz) is used to power the steam valve coil. The supply voltage will intiate from the I/O board Terminal number #6 (wht/blue wire) to the steam valve coil when heat is being called for by temperature board. The neutral will be supplied from the (blu/yel) wire connected to AC neutral terminal on the I/O board. The valve gets a signal from the pressure switch. That signal will be 24 VDC and comes from the CPU board and through the pressure switch. With the low level safety relay contacts now switched and closed , voltage now will pass to the heat relay operating coil, and allow main 3 phase voltage across the heating elements.

9732-172-001

OPTIONAL STEAM VALVE KIT OPERATING INSTRUCTIONS

Programmed temperatures will be displayed in CENTIGRADE only.

The valve will turn on when low water level has been obtained and actual temperature is less than programmed temperature.

While the valve is engaged the wheel will pause 3 minutes between each forward/ reverse rotation. The wheel will resume normal operation when bath temperature is 5 degrees before the programmed temperature is reached.

Cycle countdown time display will stop while valve is engaged.

Valve will maintain the temperature throughout heated baths and will engage when bath temperature drops below 3 degrees of programmed temperature.

Actual temperature may be displayed by pressing the start and down arrows simultaneously. The temperature light will be on whenever the temperature is being displayed and will continue to be displayed until the start button is pushed again to display time remaining.

Any temperature between 20 degrees and 90 degrees in 5 degree increments is programmable.

Any bath that has a programmed spin cycle will go through a short cool down bath before spinning if the actual bath temperature at the time of draining is above 65 degrees . This bath consists of filling tub to low level with WARM water while tumbling and then draining. This will continue until bath temperature is below 65 degrees

If machine stop button is pressed momentarily(soak condition) while the heaters are energized, the wheel will continue with the 3 minute pause between each forward / reverse rotation until the set temperature has been reached. The normal 15 minute pause between each forward/reverse rotation will then take place until the start button is pushed to resume the cycle.

Actual bath water temperatures will normally overshoot the set temperature by 1 degrees to 3 degrees . This is to assure set temperature will be maintained throughout a normal bath time of 10-20 minutes. The valve will engage if the bath temperature drops below 3 degrees of set temperature.

STEAM VALVE KIT (OPTION) # 9732-172-001
PROGRAMMING

The heated bath is programmed in our water temperature selection portion of our microprocessor.
You will program a formula the same except as follows:
When you arrive at temperature selection portion of programming you will see the following choices :EE (tub empty), CC (cold), CH (warm), HH (hot), or any temperature between 20 degrees and 90 degrees in 5 degrees increments.
Use the up arrow and down arrow pad to set the water temperature desired (Centigrade) and then push the green start button to accept the change and then move to the next programming sequence.
Continue with any other cycle changes as previously discussed.
To exit the program mode and accept all changes press the red stop button while any one of the nine bath lights(top row of lights) are lit. The" Select cycle " light should be on. Turn the run/program key back to run position. If the program mode is exited incorrectly, the "Program" light will remain lit and the machine will remain in the program mode until the run/program key is turned back to the program position and the program is exited correctly.

Steam valve kit Features

When a numeric value for temperature is programmed for any bath the water valve selection to fill that bath is chosen as follows:

20 degrees - 35 degrees Centigrade	Cold valve only will be used
40 degrees - 60 degrees Centigrade	Cold and Hot Valve will be used
65 degrees - 90 degrees Centigrade	Hot valve only will be used

Temperature control and display are operated with a temperature control circuit board on the I/O board, a thermistor sensor in the tub back, and a computer logic board (CPU).
Control voltage is 115 volt (60hz) .

Steam Valve Troubleshooting

If the valve does not engage in a heated bath:

Check the calibration switch is set to run position

Check that I/O board jumpers are changed to the level side ,
Jumper must start closest to level input light and open pin will be towards door input lights.

Check actual water temperature is less than programmed temperature

Check the temperature sensor for open circuit or shorted

Check low level contacts on the pressure switch not closing

Check steam valve coil

Check wiring between temperature board and sensor at all connectors and inspect wires for any damage.

If temperature control board is removed, the programmed temperature value is retained in all baths and the water valves to fill that bath are chosen based on the programmed temperature as described on previous feature page.

Steam Calibration

The calibration should be checked whenever a temperature sensor has been replaced or if actual water temperature varies significantly from the display.
To calibrate the temperature control board go to step # 15 of the diagnostic cycle (#31) . Actual temperature will be shown in display. On the temperature control board move the cal- run switch to the calibrate position. The factory set calibration temperature of 98 degrees C should show on the display after a few seconds. Now turn the adjusting screw clockwise to increase calibration point and display temperature or counterclockwise to decrease calibration point and display temperature. The display is updated every 5 seconds so make adjustments in very small increments. Be sure to allow ample time for display to respond to updates. If adjustments of higher than 100 degrees C only the last two digits will be displayed.

STEAM Heated Washer Schematics

Control voltage 115 vac (60hz) is used to power the steam valve coil. The supply voltage will intiate from the I/O board Terminal number #6 (wht/blue wire) to the steam valve coil when heat is being called for by temperature board. The neutral will be supplied from the (blu/yel) wire connected to AC neutral terminal on the I/O board. The valve will get a signal when the pressure switch reaches low level . 115 vac will operate steam valve until programmed temperature is reached. Please remember you will lose a cold water dispenser flush signal as this is now the operating signal track on the I/O PCB board . It is marked on the lettering shield on the top of the I/O board.

Section 8

Maintenance

WASHER PREVENTIVE MAINTENANCE (PM) REQUIREMENTS

MAKE SURE ALL POWER IS DISCONNECTED BEFORE MAKING CHECKS INSIDE MACHINE.

DAILY

1. Clean the cabinet top around soap dispenser.
2. Clean the soap dispenser and soap lid and check that all dispenser mounting screws are in place and tight.
3. Check the drain for leaking and proper draining.
4. Check the water connections for leaks.
5. Check door seal for foreign material.
6. Leave the loading door open to aerate the washer when not in use.

QUARTERLY

1. Check the drive belt for wear and proper tension.
2. Clean lint and other foreign material from around drive motor.
3. Remove water inlet hose filter screens and clean or replace as necessary .
4. Check all electrical components for moisture and wipe away any foreign debris.

ANNUALLY

1. Clean and remove lint and foreign debris from outside cover of VFD with a dry clean rag or dry brush.
2. Inspect all wire connections especially at relays, terminal connections and circuit boards for tightness.
3. Inspect and check tightness of mounting bolts that mount washer frames to floor.

AFTER ANY SERVICE REINSTALL ALL PANELS AND SAFTEY SCREENS BEFORE RECONNECTING POWER

Maintenance Notes