The Incubator Company

Equipping your Hatchery for success

Dr. Keith Bramwell

with

Phillip Perry and Henry Kohl

Hatchery Consultants

David Hammond and Kirk Dawkins

North America Sales

JAMESWAY

Todays Presentation

- Equipping your Hatchery for success
  - The proper tools needed
  - Spare parts and PM schedules
  - Inventory management, and the corrosive effects of chemicals
  - Generational changes, and updating your hatchery

JAMESWAY

JAMESWAY ESSENTIAL HATCHERY TOOLS

JAMESWAY

Basic Hand Tools

THE BITTER TASTE OF POOR QUALITY LINGERS LONG AFTER THE SWEETNESS OF LOW PRICE IS FORGOTTEN.

JAMESWAY

Basic Hand Tools

- Screwdrivers
- Pliers
- Wrenches-SAE
- Drill with bits
- Voltmeter
- Flash Light
- Socket Set
- Measuring Tape

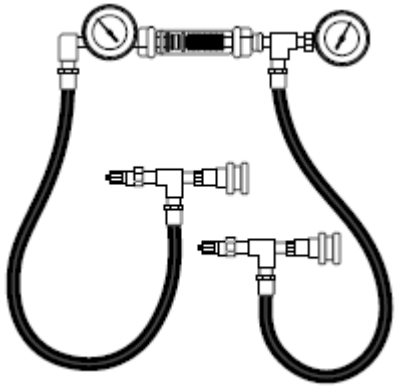
Specific Tools Multi-Stage

- HA1145 Rack Tester
- Clamp Amp Meter
- PT100 Calibration Tool

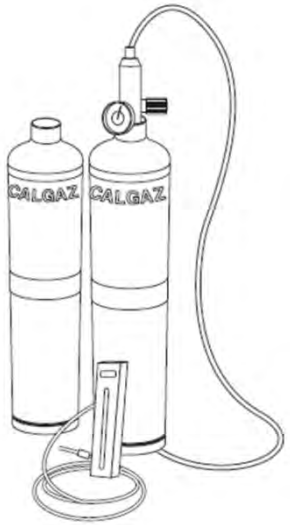
JAMESWAY

Specific Tools Single-Stage

- **Water Flow Tester**
  1. **Brass Couplers HA1143P**
  2. **Plastic Coupler HA1153**
  3. **Shark Bite HA1160**



Shark Bite ½” Disconnect Tongs



- **CO2 – HA1155**
  Carbon Dioxide Gas Meter.

- **CO2 Calibration Gas**
  1. **5000 ppm CO2 (Balance Nitrogen)**
  2. **Nitrogen**
  3. **Regulator - Flow Rate 0.50 LPM**

JAMESWAY

Temperature Calibration

- **Temperature – HA1070**
  Digital Therm & Plastic Probe

- **Temperature/Humidity – HA1152**
  Digital Therm with Humidity Probe
  (HA1165 Strap Probe)

JAMESWAY

Ventilation Tools

- HA1150 Handheld Digital Manometer
- HA1149 Thermo-Anemometer
- Multimeter
- Electrical screwdrivers

JAMESWAY

SPARE PARTS MANAGEMENT

JAMESWAY

The Industry is Faced with Two Challenges

1. Generational change in Management, Maintenance, and General Labor
2. Multi-Stage Incubation equipment in North America is 40 plus years old on average

JAMESWAY

Two Types of Hatchery Maintenance

- Reactive Maintenance
- Preventative Maintenance (pro-active)

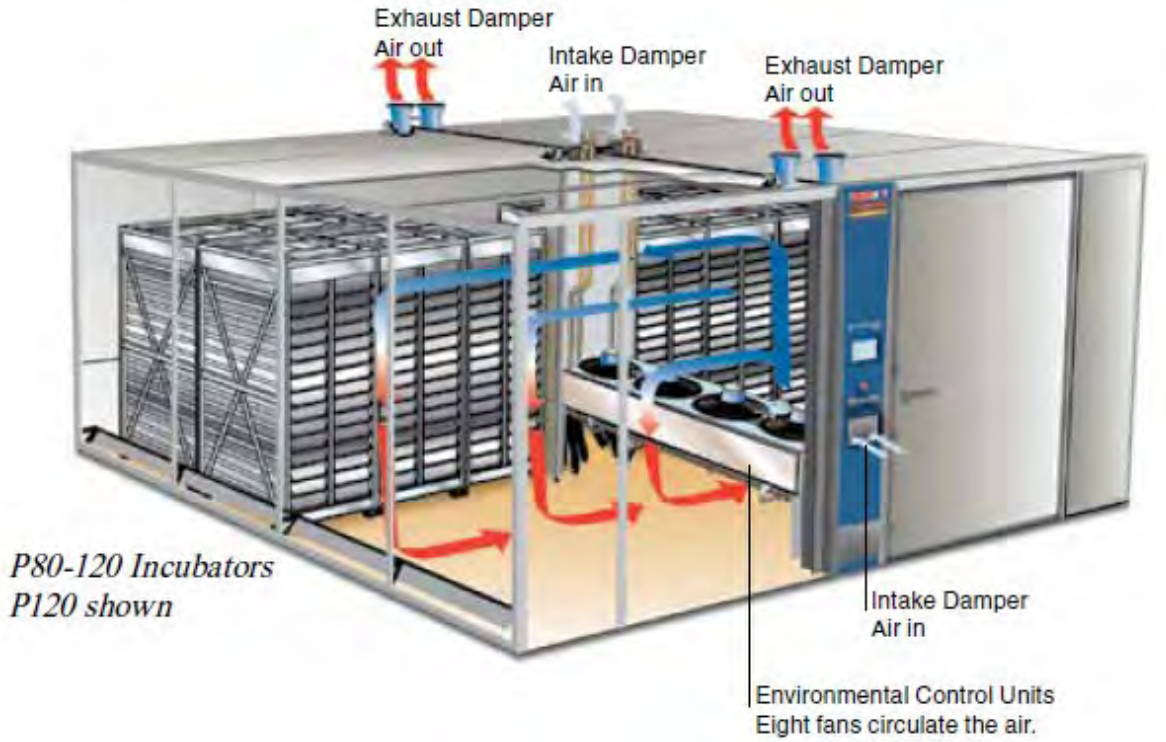
JAMESWAY

Understanding by Maintenance

- Need to understand the principles of the Jamesway Multi-Stage machine (Crossbar temps, cabinet pressures, exit end temps, calibrations)
- Need to understand how maintenance of the Machine impacts the proper operations of the Jamesway Multi-Stage Incubator
- Need to know which parts need routine replacing to minimize loss of efficiencies
  - Spray nozzles, curtain panels, gaskets, door seals, incubator racks

JAMESWAY

“Maintenance is Key to Optimizing the Incubation Environment”



P80-120 Incubators
P120 shown

JAMESWAY

HVAC Life Expectancy

- Ventilation type equipment typically lasts 15-25 years when well maintained
- It usually becomes easier to replace unit rather than replace parts
- Control systems can become outdated

JAMESWAY

Recommended SPARE PARTS - MS

- Electro-Mechanical
- PT-100
- PS 501

PT100 Recommended Basic Spare Parts

CW HATCHER PARTS			
PB4319	2C917 BLOWER 230V 60/50HZ	1	ea
AB6181	MOTOR ASSY PT100 HATCHER 220V	2	ea
AB6190	MOTOR ASSY INC 220V CCW NO PLUG	2	ea
PB5997	FAN 16" 4 BLADE 32 DEG CW /A	2	ea
AB3493	SPRAY ASSEMBLY	2	ea
AB5672	RESERVOIR ASSEMBLY	1	ea
PB1791	MALE CONNECTOR 3/8T-1/4PT	2	ea
PB2955	DAMPER MOTOR MOD.#M436A1090	1	ea
PB4345	1" X 1.5" GASKET	30	ft
PB4529	LIQUID TIGHT CONNECTOR	2	ea
PB1756	GASKET 1/2" X 1"	30	ft
PB1766	GASKET 1/4" X 1/2"	30	ft
PB4616	DOOR GASKET	30	ft
PB2940	HEAT RING	1	ea
PB1892	MOTOR MOUNT	1	ea
PB3746	OUTLET 3 WIRE W/SCREW	1	ea
PB5039	PLUG BRYANT	1	ea
PB			
SMA102S	PT100 SYSTEM BOARD ASSY. SPARE	1	Obsolete
PB			
PT2266	CIRCUIT BREAKER 2 POLE 15A	1	ea
AB PB4224	SWITCH (FANS) (3-WAY)	2	ea
PB PB4225	SWITCH (LIGHTS) - MOMENTARY	2	ea

JAMESWAY

Recommended SPARE PARTS - SS

P2 - RECOMMENDED BASIC SPARE PARTS

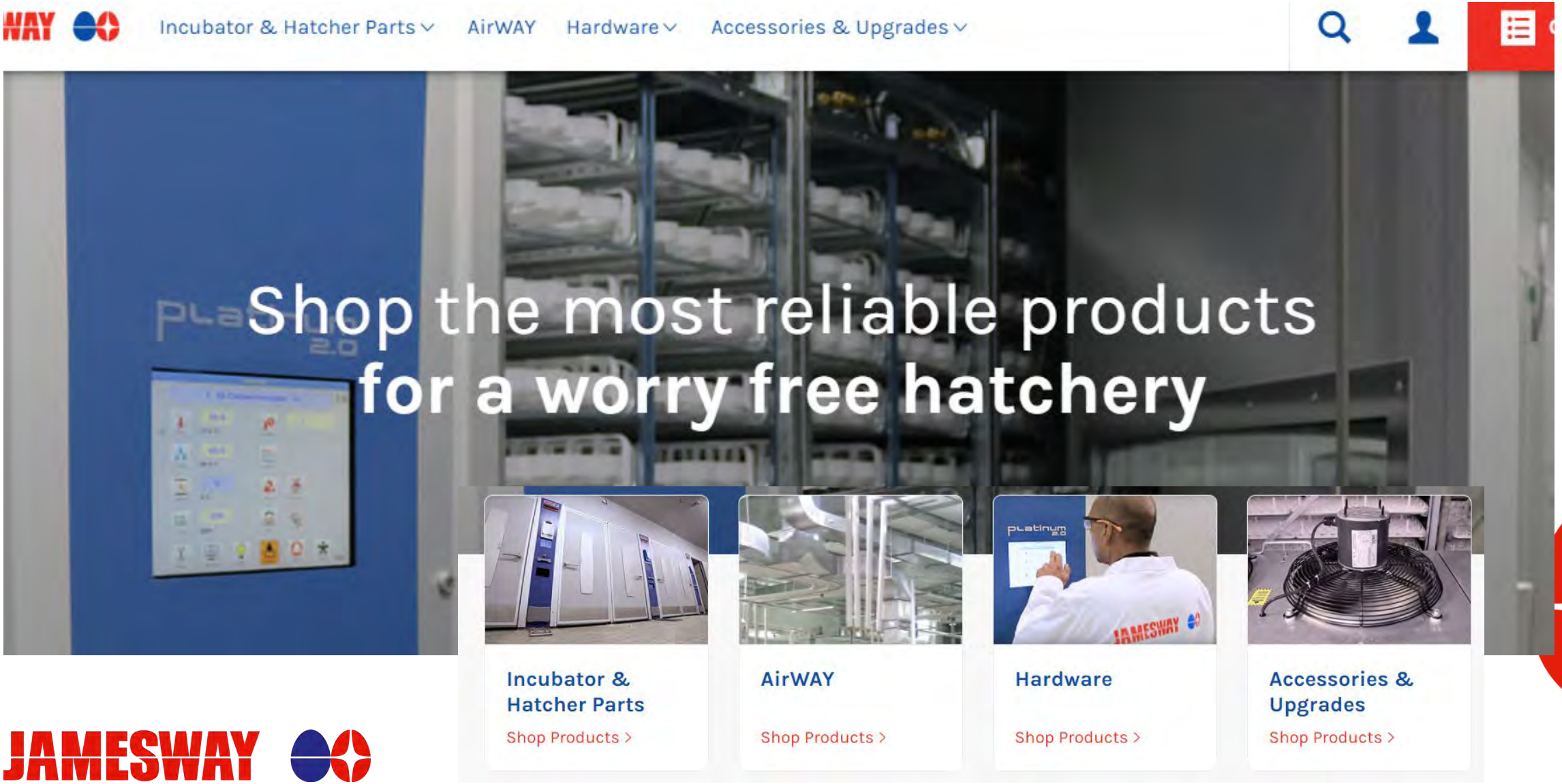
OTHER RECOMMENDED PARTS:

Part #	Description	Quantity		Quantity	
FOR TURNING SYSTEM:				1	ea
				1	ea
PB5777	24VAC MAC Valve	1	ea	3	ea
PB32942	Air cylinder(Use to be PB5589)	1	ea	1	ea
PB4390	Foster Brass connector	1	ea	1	ea
PB3294	Compression nut with ferrule	5	ea	1	ea
P4254	1/4"Black tubing	25	feet	5	ea
P4253	1/4" Clear tubing	25	feet	1	ea
				1	ea
FOR DOORS				1	ea
1000379	Pre-cut Door Sweep Gasket	2	ea	1	ea
MB7839	Floor Seal Profile (Alum.)	1	ea	1	ea
				1	ea
				1	ea
FOR FANS CONTROL (Select the approprite voltage)				1	ea
1002462	Programmed Drive 1 Ph , 200-240VAC	1	ea	1	ea
1002461	Programmed Drive 3 Ph , 200-240VAC	1	ea	1	ea
1002460	Programmed Drive 3 Ph , 380 - 480 VAC	1	ea	1	ea
				1	ea
				1	ea
FOR ECU				5	feet
PB6245	Fan Motor 220 VAC, 3 Phase	1	ea	2	ea
PB6246	Fan Motor 380-460 VAC, 3 Phase	1	ea	2	ea
PB5142	Fan Blade 32, 4 Blade CW	1	ea	2	ea
PB5143	Fan Blade 32, 4 Blade CCW	1	ea	2	ea
PB5952	ECU Motor Mount	1	ea	30	feet
PB30585	Gas Spring Cylinder	1	ea	1	ea
PB6154	Hairpin Heater 220V,2000W	1	ea	1	ea
PB6153	Hairpin Heater 480V, 2000W	1	ea	1	ea
PB30417	Hairpin Heater 380V, 2000W	1	ea	1	ea
				1	ea
				1	ea
				1	ea
				1	ea
PT2427	Breaker 20A , 3 Pole (220V-Elec. Heat)	1	ea		
PT2425	Breaker 15A, 3 Pole (380V-Elec. Heat)	1	ea		
PB6244	3 Pole AC Contactor 24 VAC (Electric Heated)	1	ea		

- ACI
- P1
- P2.0 (24VAC)
- P2.0 (24VDC)

JAMESWAY

Jamesway Online Store



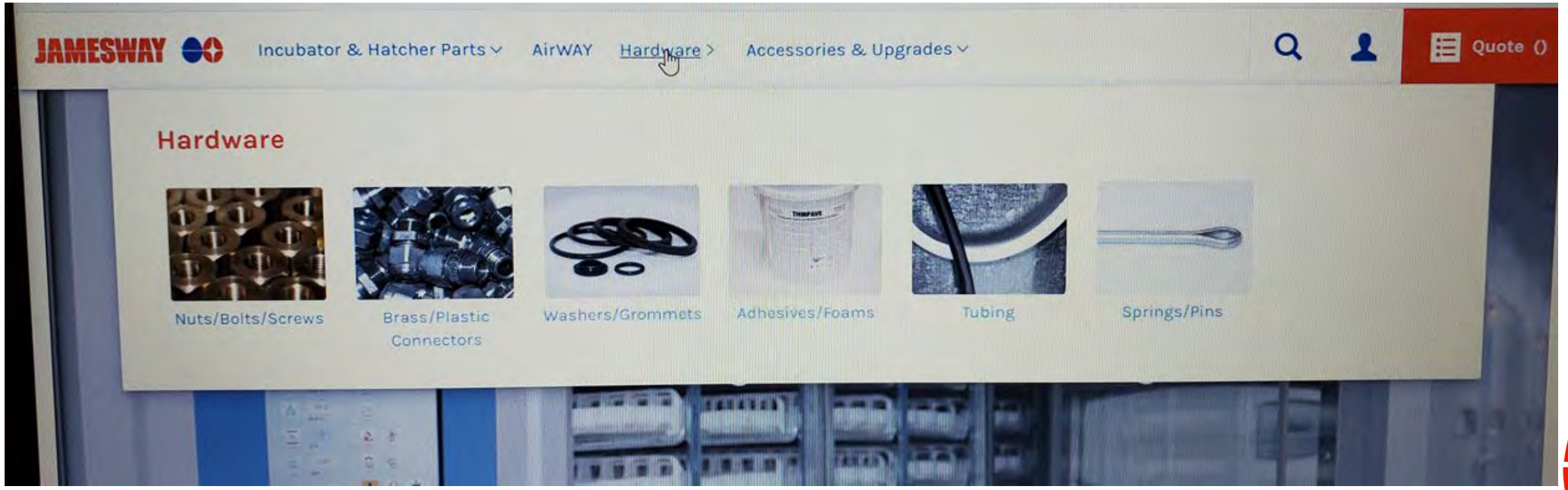
Incubator and Hatcher Parts

If you can not find the part you are looking for just give us a call

JAMESWAY

Hardware

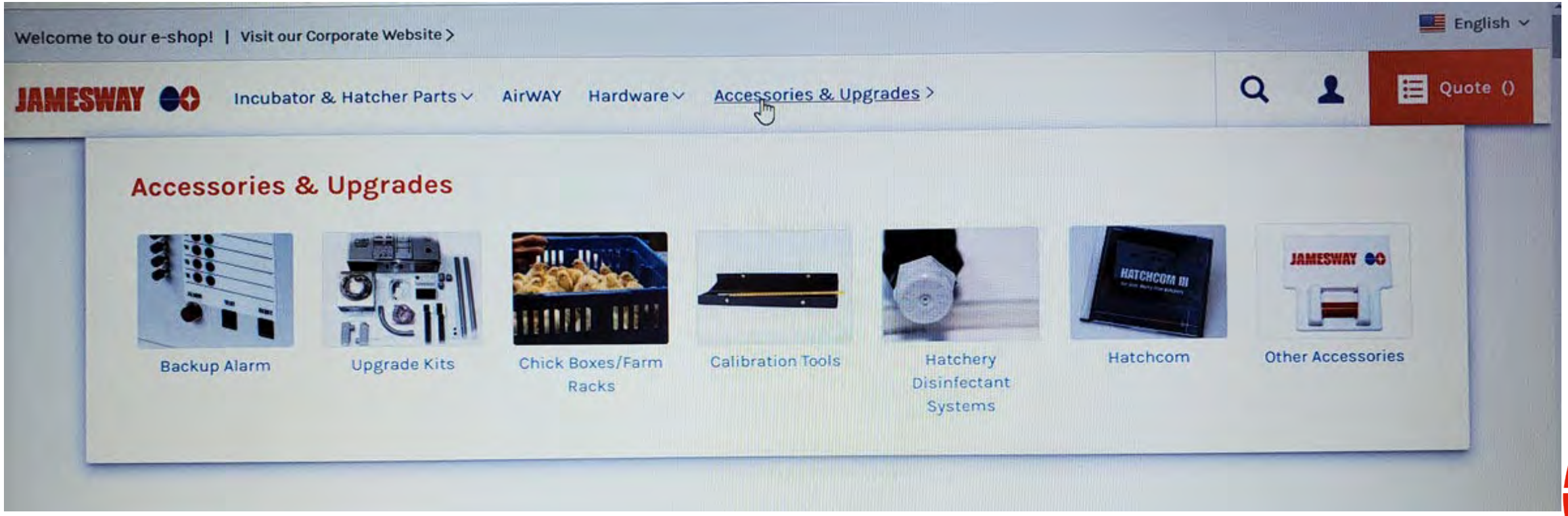
If you can not find the part you are looking for just give us a call



JAMESWAY

Accessories and Upgrades

If you can not find the part you are looking for just give us a call



JAMESWAY

Spare Parts Template

Online Store:

- WWW.Jameswayparts.com

After hours parts number:

519-624-4646

Company Name	Jamesway	Requested By:	
Address	1105 C Technology Drive	Date:	
	Indian Trail North Carolina 28079		
Phone # :	800-438-8077	Contact:	Danny Walker
	800-203-2299	Contact:	Ronald Roxar
ONLINE ORDERING:			

Item #	Quantit	Item Description	Price Each	Total Price
PB5146	9	ACI Motor	$300.80	$2,707.20
PB6246	9	Platinum Motor	$220.00	$1,980.00
1002553	4	VFD	$507.20	$2,028.80
PTA417r	1	Board	$1,120.00	$1,120.00
PB5142	5	CW Fan Blade	$37.60	$188.00
PB5143	5	CCW Fan Blade	$40.00	$200.00
PB4742	5	1/2 Plug	$21.60	$108.00
PB4743	5	1/2 Socket	$55.20	$276.00
SMA103S	2	Damper Board	$497.60	$995.20
AB6292	4	Female To Female	$64.80	$259.20
AB6291	4	Male To Female	$61.60	$246.40
AB6291	4	Male To Male	$61.60	$246.40
PT1141	3	Temp Probe	$71.20	$213.60
PB4390	20	Farter Socket	$10.40	$208.00
PB4993	3	Long ECU Hare	$117.60	$352.80
SMA110r	1	Conversrion Board	$800.00	$800.00
PB4593	3	Mac Valve ACI	$91.20	$273.60
PB4805	100	1/2 Coil Clamp	$0.80	$80.00
PT2416	1	Touch Screen Control Board	$157.60	$157.60
AB6293	4	Male to Female Crossover Drop	$57.60	$230.40
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
		Total		$12,671.20
		Freight		$727.38
		Grand Total US		$13,398.58

Recommended MS PM Schedule

Monitoring Schedule for Incubators

All of the items mentioned below should be checked, as scheduled.
Refer to page 101 for additional notes.
Actual readings should be recorded and compared with the optimum.
All other items should be assessed as to their operating condition – either satisfactory or unsatisfactory.
Unsatisfactory would include not operating properly, excessive wear, dirt or any potential problem. Items, not in satisfactory condition, should be repaired or replaced, and/or cleaned prior to further use.

Items to be Checked		Time Schedule			
		Immediately After Every Set	Every 3 Hours After Set	Twice Daily	Daily
A) Temperature Calibration					
1. Display reading	°F or °C			●	
2. Check reading	°F or °C			●	
3. Set point	°F or °C			●	
B) Humidity Calibration					
1. Display reading	RH °FWB or °CWB			●	
2. Check reading	RH °FWB or °CWB			●	
3. Set point	RH °FWB or °CWB			●	
C) General Machine					
1. Position of egg rack against the venturi		○			
2. Rubber baffle condition		○			
3. Curtain condition		○			
4. Curtain position		○			
5. Heat rods		○			
6. Fan rotation		○			
7. Motor off switches		○			
8. Doors seal properly		○			
9. Doors latch properly		○			
10. Door gasket condition		○			
11. Threshold gasket condition		○			
12. Threshold position		○			
13. Space Saver intake duct position		○			
14. Egg turning mechanism			○		
15. Audible alarms					●
16. Spray nozzles, no excessive dripping					●
17. Spray nozzle pattern 60°					●

Monitoring Schedule for Hatchers

All of the items mentioned below should be checked, as scheduled.
Refer to page 102 for additional notes.
Actual readings should be recorded and compared with the optimum.
All other items should be assessed as to their operating condition – either satisfactory or unsatisfactory.
Unsatisfactory would include not operating properly, excessive wear, dirt or any potential problem. Items, not in satisfactory condition, should be repaired or replaced, and/or cleaned prior to further use.

Items to be Checked		Time Schedule		
		Pre-Transfer	Twice Daily	Daily
A) Temperature Calibration				
1. Display reading	°F or °C		●	
2. Check reading	°F or °C		●	
3. Set point	°F or °C		●	
B) Humidity Calibration				
1. Display reading	RH °FWB or °CWB		●	
2. Check reading	RH °FWB or °CWB		●	
3. Set point	RH °FWB or °CWB		●	
C) General Machine				
1. Fan blade condition		○		
2. Fan blade spacing		○		
3. Fan rotation		○		
5. Heat rings		○		
6. Hatcher rack track condition		○		
7. Hatcher rack track position		○		
8. Doors seal properly		○		
9. Doors latch properly		○		
10. Door gasket condition		○		
11. Threshold gasket condition		○		
12. Threshold position		○		
13. Spray nozzles, no excessive dripping		○		
14. Spray nozzle pattern 60°		○		

Monitoring Schedule for Ventilation

All of the items mentioned below should be checked, as scheduled.
Refer to page 102 for additional notes.
Actual readings should be recorded and compared with the optimum.
Investigate any inconsistent readings.

Items to be Checked		Time Schedule
		Twice Daily and Twice Nightly
Record in each plenum		
A) Magnehelic Gauge		
1. Display reading	in.w.g or Pa	○
2. Check reading	in.w.g or Pa	○
3. Optimum pressure	in.w.g or Pa	○
B) Temperature		
1. Display reading	°F or °C	○
2. Check reading	°F or °C	○
3. Optimum temperature	°F or °C	○
C) Humidity		
1. Display reading	RH °FWB or °CWB	○
2. Check reading	RH °FWB or °CWB	○
3. Optimum humidity	RH °FWB or °CWB	○

JAMESWAY

Recommended SS PM Schedule

MAINTENANCE SCHEDULE FOR PLATINUM INCUBATORS AND HATCHERS

All of the items mentioned below should be checked, as scheduled.

Actual readings should be recorded and compared with the optimum.

All other items should be assessed as to their operating condition – either satisfactory or unsatisfactory.

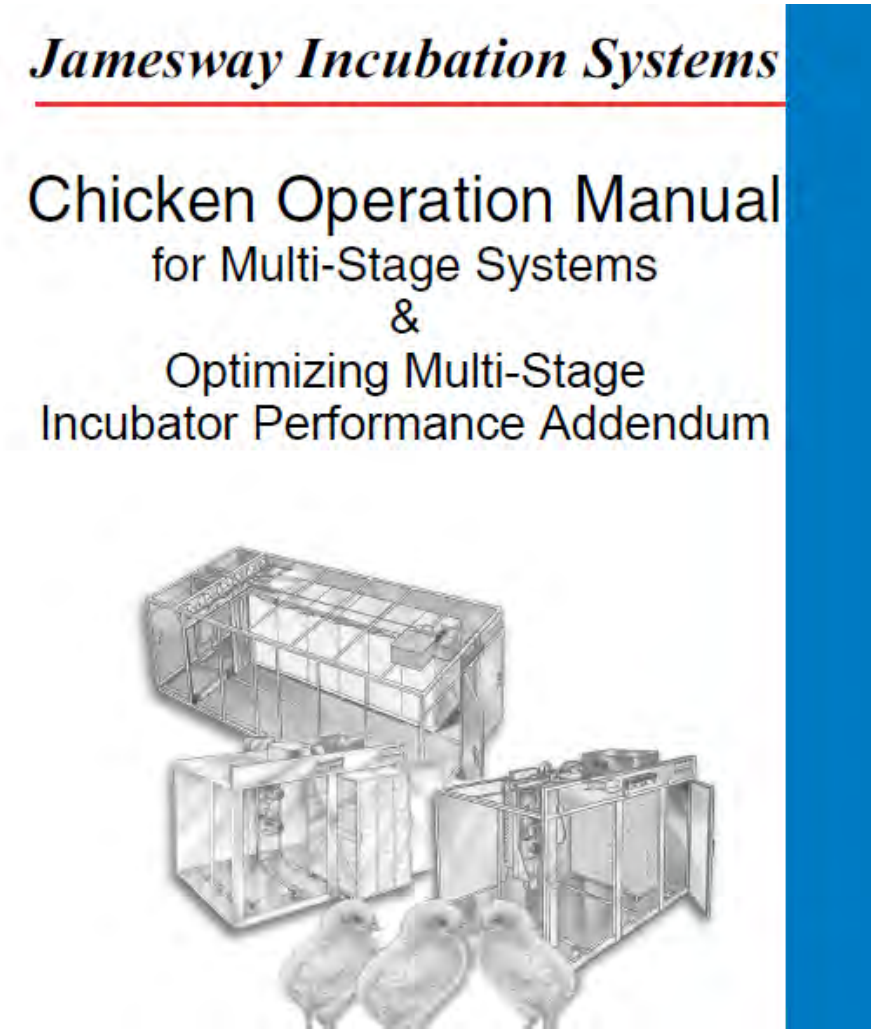
Unsatisfactory would include not operating properly, excessive wear, dirt or any potential problem. Items, not in satisfactory condition, should be repaired or replaced, and/or cleaned prior to further use.

Items to be Checked		Time Schedule			
		Incubators After Every Transfer/ Wash	Hatchers Monthly *or daily weekly	Both, Every 3 Months	Both, Every 6 Months
Temperature Calibration					
1. Display reading	°F or °C	○	○		
2. Check reading	°F or °C	○	○		
3. Setpoint	°F or °C	○	○		
Humidity Calibration					
1. Setpoint	RH °FWB or °CWB	○	○		
2. Display reading	RH °FWB or °CW	○	○		
3. Check reading	RH °FWB or °CWB	○	○		
Carbon Dioxide Calibration					
1. Setpoint	% or ppm	○	○		
2. Display reading	% or ppm	○	○		
3. Check reading	% or ppm	○	○		
Compressed Air					
1. Reading		○	○		
2. Water build up?		○	○		
3. Tank - drain		○	○		
General Machine					
1. Doors seal properly					●
2. Doors latch properly					●
3. Door gasket condition		○	●		
4. Door sweep condition				●	
5. Caulking - all joints				●	
6. Damper zero position				●	
7. Damper operating properly. See page 105.				●	
8. Damper slides not binding				●	
9. Damper openings equal		○	○		
10. Hatcher fan (if equipped) operating properly				●	
11. Water hose connections		○	○		
12. Water hose couplings		○			

Items to be Checked	Time Schedule			
	Incubators After Every Transfer/ Wash	Hatchers Monthly	Both, Every 3 Months	Both, Every 6 Months
General Machine				
13. Air lines	○			
14. Air connections	○			
15. Temperature sensor condition			●	
16. RH sensor			●	
17. RH cover			●	
18. CO_2 sensor (optional)			●	
19. CO_2 cover (optional)			●	
Environmental Control Unit (ECU)				
1. Fan condition (vibration?)	○	○		
2. Fan rotation	○	○		
3. Heating and cooling coils	○	○		
4. Heating and cooling quick connect couplers	○	○		
Controls				
Switch off power to control box! Failure to do so may result in electrical shock.				
Note: It is absolutely necessary that the control box be clean and free of any dirt (especially metal filings), and moisture for proper operation. Boards, relays, connections and wires will discolour if there is excessive heat. Excessive heat usually is caused by poor connections. Problems should be corrected as required.				
1. Control box - clean, vacuum if required			●	
2. Control box - check for moisture			●	
3. Lid assembly, relays and connections			●	
4. Board – clean, vacuum if necessary			●	
5. Board condition			●	
6. Board plugs firmly seated			●	
7. Wiring condition			●	
8. Water manifold and valve condition			●	
Touch Screen Buttons				
1. ECU Fan button	○	○		
2. Turn button	○	○		
3. Alarm by-pass button	○	○		
4. Alarm silence button	○	○		
Console				
1. Emergency shut off	○	○		
2. Power light (Jamesway logo)	○	○		
3. Alarm light (red)	○	○		
4. Alarm by-pass light (amber)	○	○		

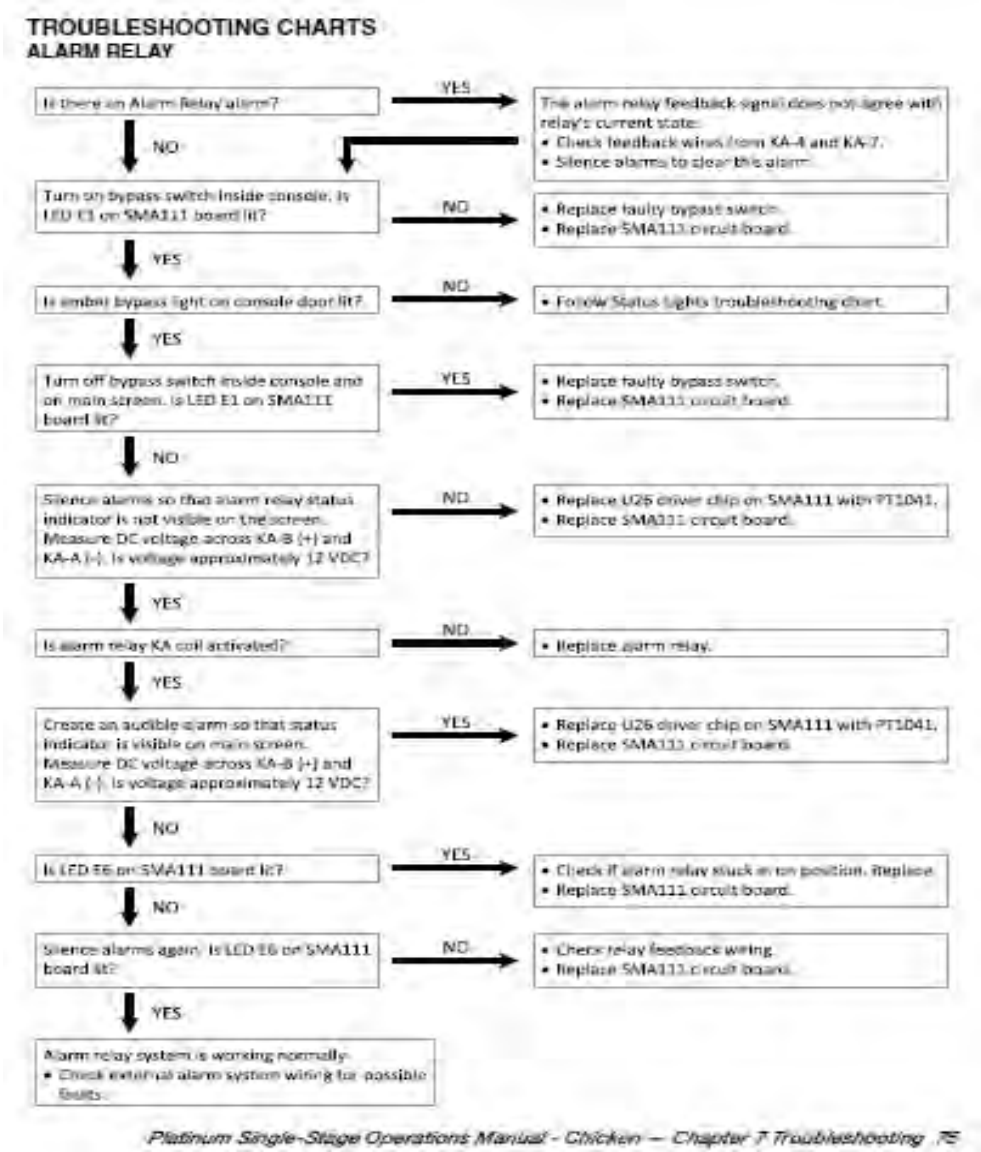
JAMESWAY

Read the Operations Manual



JAMESWAY

Follow the Troubleshooting guide



TROUBLESHOOTING CHARTS
ALARM RELAY

Is there an Alarm Relay alarm? — YES → The alarm relay feedback signal does not agree with relay's current state:
- Check feedback wires from KA-4 and KA-7.
- Silence alarms to clear this alarm.

NO ↓

Turn on bypass switch inside console. Is LED E1 on SMA111 board lit? — NO →
- Replace faulty bypass switch.
- Replace SMA111 circuit board.

YES ↓

Is amber bypass light on console door lit? — NO →
- Follow Status Lights troubleshooting chart.

YES ↓

Turn off bypass switch inside console and on main screen. Is LED E1 on SMA111 board lit? — YES →
- Replace faulty bypass switch.
- Replace SMA111 circuit board.

NO ↓

Silence alarms so that alarm relay status indicator is not visible on the screen. Measure DC voltage across KA-B (+) and KA-A (-). Is voltage approximately 12 VDC? — NO →
- Replace U26 driver chip on SMA111 with PT1041.
- Replace SMA111 circuit board.

YES ↓

Is alarm relay KA coil activated? — NO →
- Replace alarm relay.

YES ↓

Create an audible alarm so that status indicator is visible on main screen. Measure DC voltage across KA-B (+) and KA-A (-). Is voltage approximately 12 VDC? — YES →
- Replace U26 driver chip on SMA111 with PT1041.
- Replace SMA111 circuit board.

NO ↓

Is LED E6 on SMA111 board lit? — YES →
- Check if alarm relay stuck in on position. Replace.
- Replace SMA111 circuit board.

NO ↓

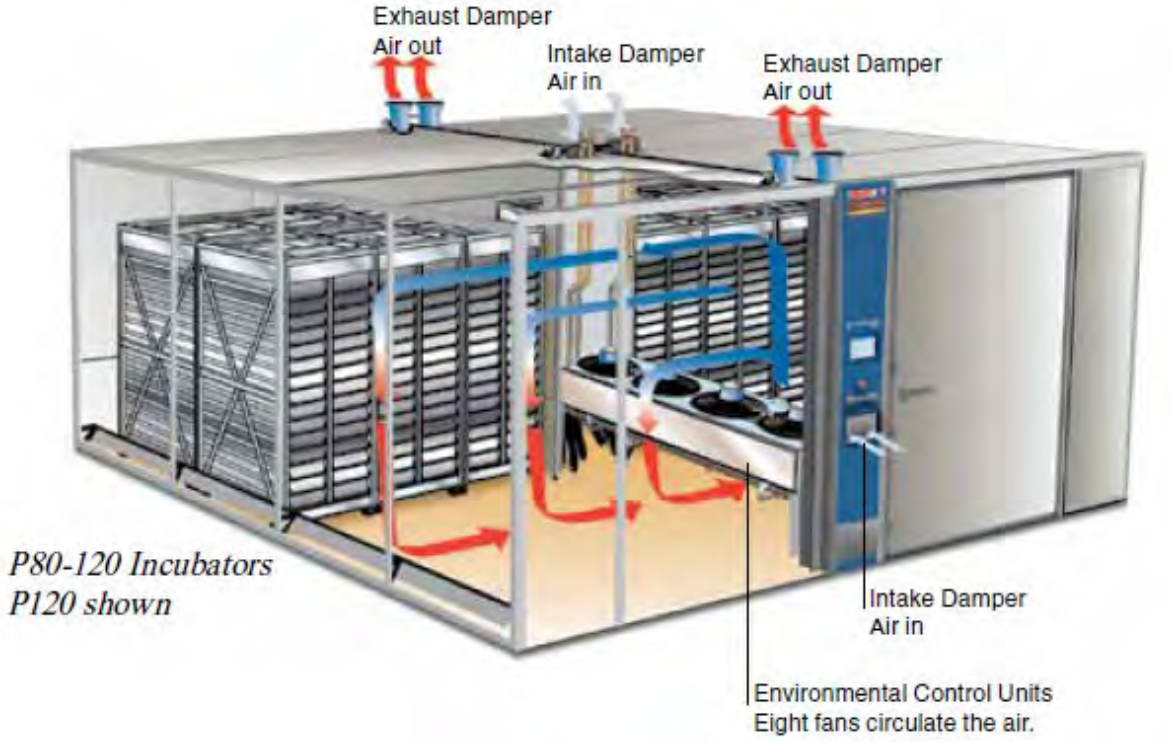
Silence alarms again. Is LED E6 on SMA111 board lit? — NO →
- Check relay feedback wiring.
- Replace SMA111 circuit board.

YES ↓

Alarm relay system is working normally.
- Check external alarm system wiring for possible faults.

JAMESWAY

Any hatchery, regardless of it's size, age or location, is only as good as it's routine and preventative maintenance programs



P80-120 Incubators
P120 shown

JAMESWAY

INVENTORY MANAGEMENT

JAMESWAY

Organizing Spare Parts

Practical spare part management is the foundation for reliable hatchery operation and is crucial to its success.

JAMESWAY

Spare Parts

Properly storing and organizing spare parts in a designated, secure space is beneficial when a crucial part needs replaced.

Spare parts lists are available.

When in doubt…Throw it out!

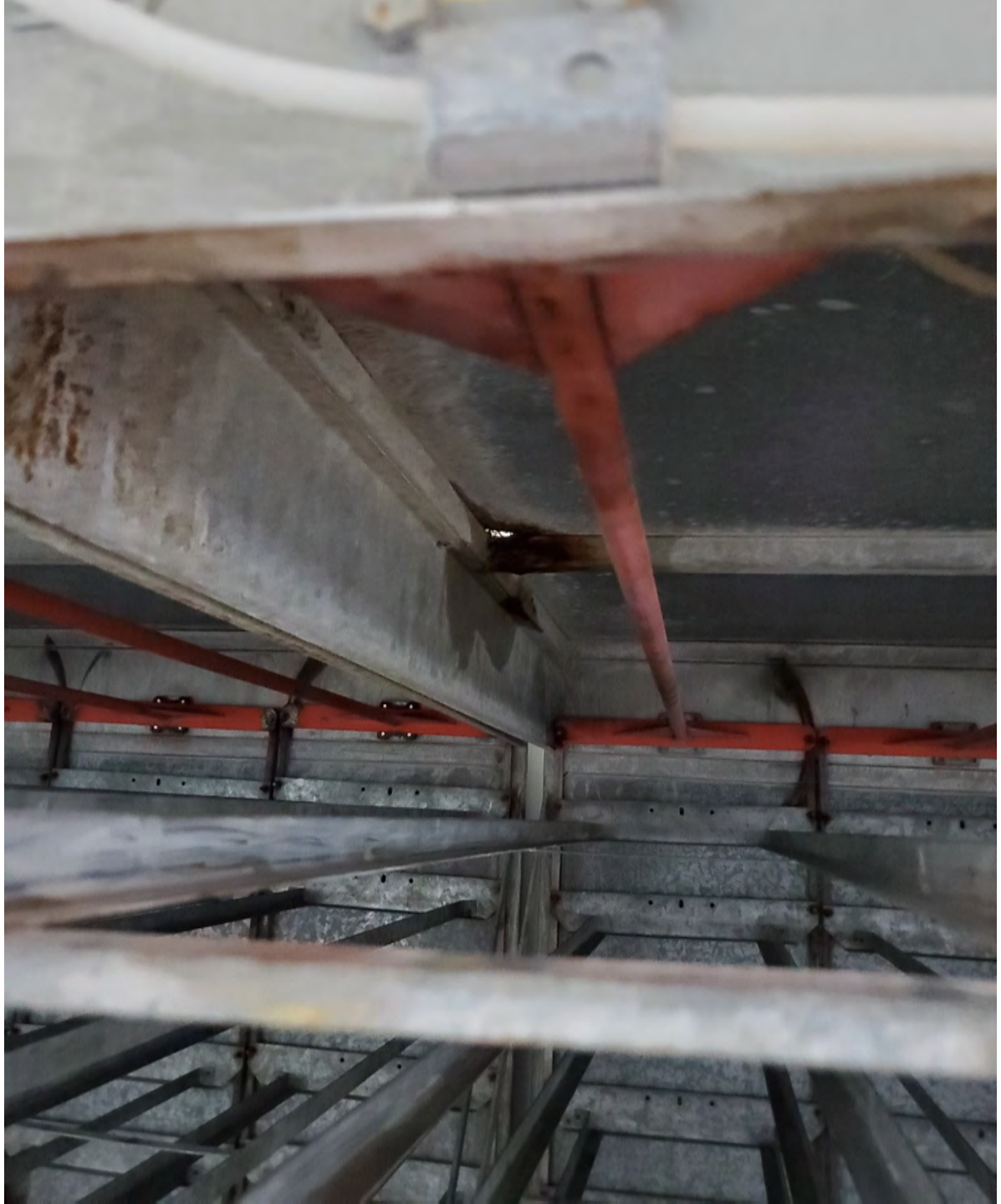
JAMESWAY

PRESERVING OUR EQUIPMENT

JAMESWAY

JAMESWAY

JAMESWAY

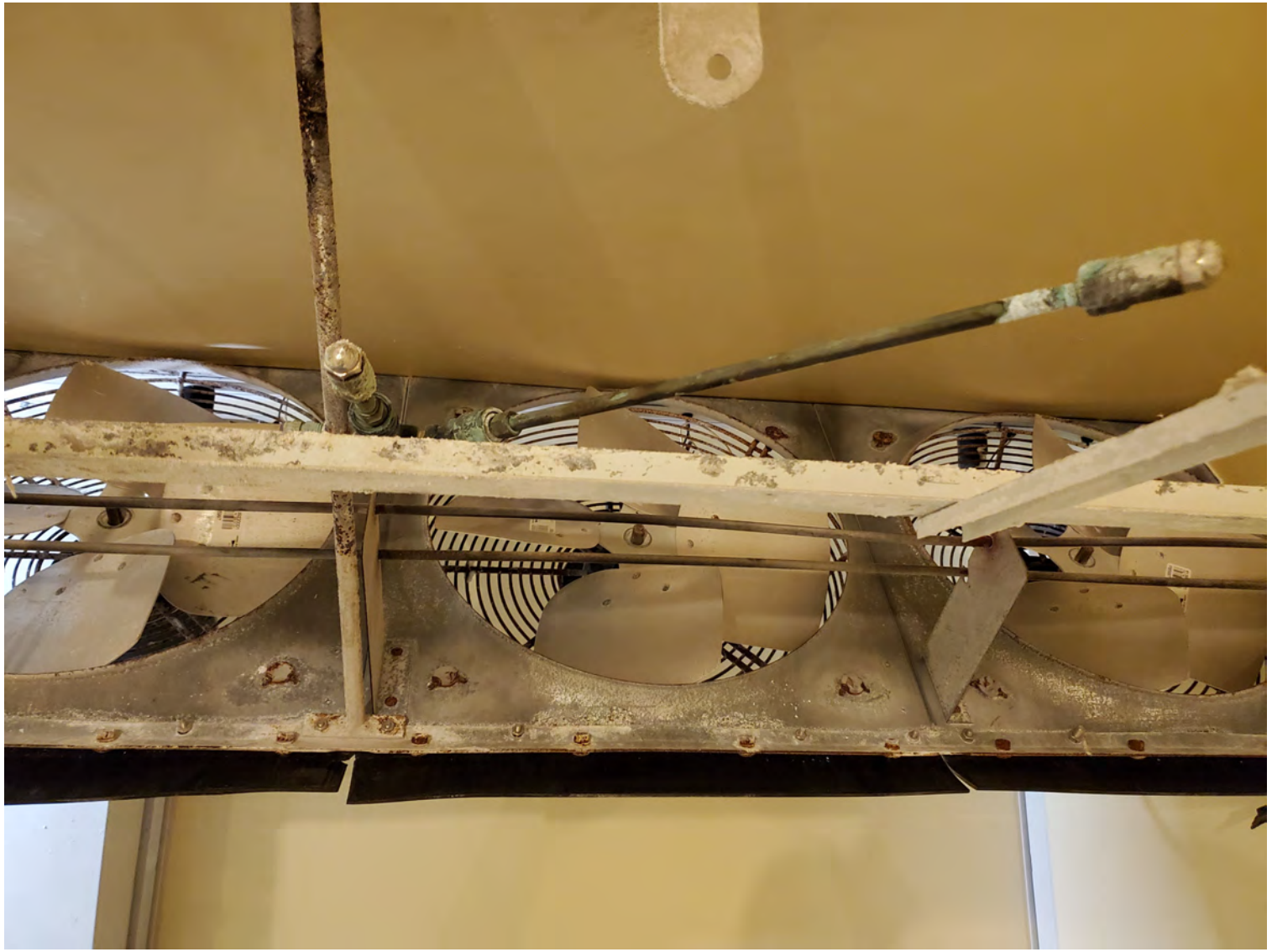


JAMESWAY

JAMESWAY

JAMESWAY

JAMESWAY

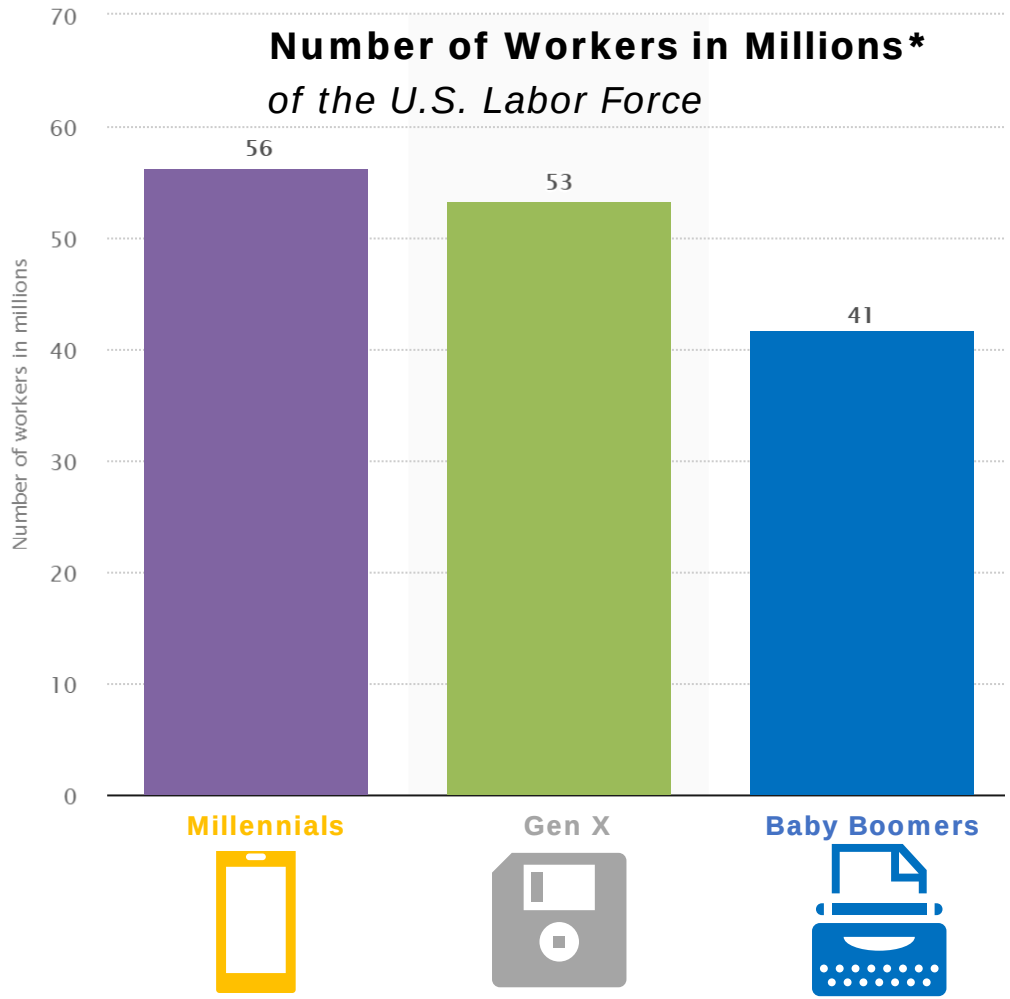


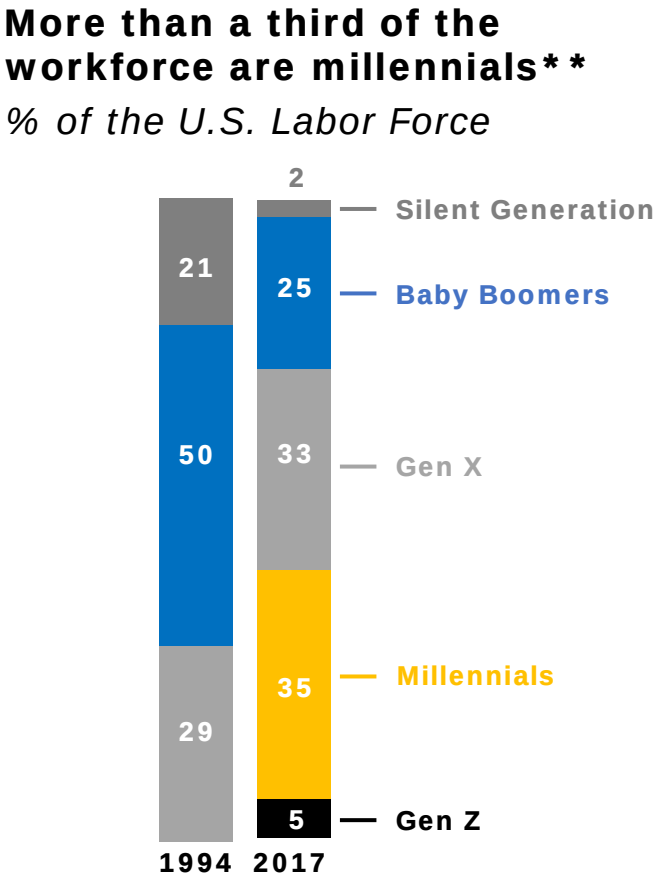
JAMESWAY

MANAGEMENT CHALLENGES

JAMESWAY

The Labor Force Today





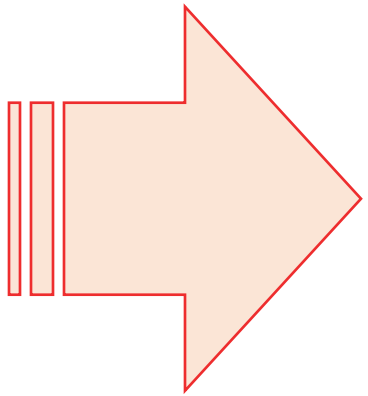
* Source: Bureau of Labor, Courtesy of Deloitte Consulting

This has immediate impacts on how managers lead their people.

The Labor Force Tomorrow

Labor Force Participation (actual and projected)*
by age

Cohort	1994	2004	2014	2024
16 to 24	66.4%	61.1%	55.0%	49.7%
25 to 54	83.4%	82.8%	80.9%	81.2%
55 to 64	56.8%	62.3%	64.1%	66.3%
65 to 74	17.2%	21.9%	26.2%	29.9%
75 and Older	5.4%	6.1%	8.0%	10.6%



America's future workforce will be ~ *OLDER*~ than it is today.

* Source: Bureau of Labor Statistics, courtesy of Deloitte Consulting

This should be on the mind of Executives and future leadership.

Management Challenges

- Incubation requirements
- Supply chain challenges
- Inventory control and budget allocation
- Labor retention and motivation

Questions ?

We can always be reached at

webinars@Jamesway.com

-Recommended Spare Parts

-Spare parts Template

-PM Schedules

JAMESWAY