Installation
Operation and
Maintenance
Manual

Impact Trimmer Models
10039
10040
10041
10042
10051
10080

Spinoff Trimmer
# Table of Contents

## CONTENTS

### SECTION 1  INTRODUCTION

1.1 Introduction .................................................................................. 1-1

1.2 How This Manual Is Organized ....................................................... 1-1

1.3 Machine Warranty ......................................................................... 1-1

1.4 Statement of Limited Liability ....................................................... 1-2

1.5 Express Contract of Indemnification .............................................. 1-3

1.6 Statement of Policy Concerning Occupational Safety and Health Act .................................................. 1-3

### SECTION 2  SAFETY

2.1 Introduction .................................................................................... 2-1

2.2 Notes and Warnings ...................................................................... 2-2

2.3 General Precautions and Personal Safety ...................................... 2-2

2.4 Safety Signs ................................................................................... 2-3

### SECTION 3  SYSTEM DESCRIPTION—IMPACT TRIMMERS (MODELS 10039, 10040, 10041, 10042, 10051 AND 10080)

3.1 Installation and Setup .................................................................... 3-1

3.1A Leveling the Trimmer .................................................................. 3-1

3.1B Electrical Connection .................................................................. 3-1

3.1C Pneumatic Connection ................................................................. 3-1

3.2 Sequence of Operation .................................................................. 3-1

3.3 Operating Controls and Electrical ................................................. 3-2

3.3A Automatic Operation ................................................................... 3-4

3.3B Manual Operation ...................................................................... 3-4

3.4 Operation and Maintenance Safety .............................................. 3-4

3.4A Pinch Points ............................................................................... 3-4

3.4B Guarding System ...................................................................... 3-4

3.4C Electrical ................................................................................... 3-6

3.4D Obstruction in the Trimmer ......................................................... 3-6

3.5 Options ......................................................................................... 3-6
Table of Contents

3.6 Mechanical Maintenance ............................................................................................................. 3-8
3.6A Trimmer Maintenance .............................................................................................................. 3-9
3.6B Installation Date-Direct Acting Brake - Size XH ................................................................. 3-9
   Direct Acting Brake Disassembly and repair Steps 1 to 5 ....................................................... 3-10
3.6C Chain and Belt Adjustment ................................................................................................... 3-12
   Bucket Chain Adjustment ........................................................................................................ 3-12
   Platen Chain Adjustment ........................................................................................................ 3-15
   Idler Sprocket Adjustment ...................................................................................................... 3-15
   Drive Belt Adjustment ............................................................................................................ 3-15
Index Chain Adjustment Model 10039-10042
   Single and Double Index & 10080 ......................................................................................... 3-15
   Bucket Chain Idler Adjustment Model 10041, 10042 Triple Index ........................................ 3-17
   Jack Shaft Chain Adjustment Model 10041 Triple Index .................................................... 3-17

3.6D Trimmer Timing ....................................................................................................................... 3-19
   Trimmer Timing Procedure 10039-10042 Single and Double Index ...................................... 3-19
   Timing Procedure 10041 Triple Index .................................................................................. 3-20
   Trimmer Timing Procedure 10080 Trimmer ........................................................................ 3-21
   Retiming the 10039-10041, 10042, 10080 .......................................................................... 3-22
   Trimmer Timing Procedure 10051 Single and Double Index .............................................. 3-23
   Retiming the 10051 Hydraulic Trimmer .............................................................................. 3-24
   10051 Hydraulic Pressure Setup .......................................................................................... 3-24

3.6E Adjusting Trim Tooling ........................................................................................................... 3-24

3.7 Pneumatic Maintenance ......................................................................................................... 3-28
3.7A Blow/Push-off System ......................................................................................................... 3-28
3.7B Leak Detector System .......................................................................................................... 3-28
3.7C Leak Detector Adjustment .................................................................................................... 3-28
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.8</td>
<td>Electrical Maintenance</td>
<td>3-29</td>
</tr>
<tr>
<td>3.8A</td>
<td>Trimmer Drive Motor Circuit</td>
<td>3-29</td>
</tr>
<tr>
<td>3.8B</td>
<td>Control Circuit</td>
<td>3-29</td>
</tr>
<tr>
<td>3.9</td>
<td>Hydraulic</td>
<td>3-30</td>
</tr>
<tr>
<td>3.10</td>
<td>Lubrication Requirements</td>
<td>3-30</td>
</tr>
<tr>
<td>3.11</td>
<td>Troubleshooting (10039-10042)</td>
<td>3-36</td>
</tr>
<tr>
<td>SECTION 4</td>
<td>SPIN-OFF TRIMMERS INCLUDING POSITIVE BUCKET SHUTTLE AND CABLE CONVEYOR</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Installation and Setup</td>
<td>4-1</td>
</tr>
<tr>
<td>4.1A</td>
<td>Leveling the Trimmer</td>
<td>4-1</td>
</tr>
<tr>
<td>4.1B</td>
<td>Electrical Connection</td>
<td>4-1</td>
</tr>
<tr>
<td>4.1C</td>
<td>Pneumatic Connection</td>
<td>4-1</td>
</tr>
<tr>
<td>4.2</td>
<td>Sequence of Operation</td>
<td>4-1</td>
</tr>
<tr>
<td>4.3</td>
<td>Operation and Maintenance Safety</td>
<td>4-3</td>
</tr>
<tr>
<td>4.3A</td>
<td>Sharp Knife</td>
<td>4-3</td>
</tr>
<tr>
<td>4.3B</td>
<td>Pinch Points</td>
<td>4-3</td>
</tr>
<tr>
<td>4.3C</td>
<td>Guarding Systems</td>
<td>4-3</td>
</tr>
<tr>
<td>4.3D</td>
<td>Electrical</td>
<td>4-3</td>
</tr>
<tr>
<td>4.3E</td>
<td>Obstruction in Trimmer</td>
<td>4-5</td>
</tr>
<tr>
<td>4.3</td>
<td>Operating Controls and Electrical</td>
<td>4-5</td>
</tr>
<tr>
<td>4.5</td>
<td>Mechanical Maintenance</td>
<td>4-6</td>
</tr>
<tr>
<td>4.5A</td>
<td>Chain and Belt Adjustment</td>
<td>4-6</td>
</tr>
<tr>
<td>4.5B</td>
<td>Knife Adjustment and Replacement</td>
<td>4-11</td>
</tr>
<tr>
<td>4.5C</td>
<td>Bottle Guide Alignment</td>
<td>4-12</td>
</tr>
<tr>
<td>4.6</td>
<td>Pneumatic Maintenance</td>
<td>4-12</td>
</tr>
<tr>
<td>4.7</td>
<td>Electrical Maintenance</td>
<td>4-12</td>
</tr>
<tr>
<td>4.7A</td>
<td>Trimmer Drive Motor Circuit</td>
<td>4-14</td>
</tr>
<tr>
<td>4.7B</td>
<td>Control Circuit</td>
<td>4-14</td>
</tr>
<tr>
<td>4.8</td>
<td>Lubrication Requirements</td>
<td>4-14</td>
</tr>
<tr>
<td>4.9</td>
<td>Troubleshooting</td>
<td>4-16</td>
</tr>
</tbody>
</table>
General Layout

10039-42 Impact Trimmers
General Layout

10051 Impact Trimmer
General Layout

10080 Impact Trimmer
SECTION 1 INTRODUCTION

1.1 INTRODUCTION
This manual covers two types of trimmers manufactured by the Johnson Controls Inc. Plastics Machinery Division (Johnson Controls): the IMPACT and SPIN-OFF. Each type of trimmer is covered under its own subsection. The Uniloy® trimmer is used to remove the flash from blowmolded plastic bottles and parts after they have left the blowmold machine.

1.2 HOW THIS MANUAL IS ORGANIZED
This manual is comprised of four sections that provide information on the entire system with a minimum of searching. Like many machines, the Trimmers are straightforward in concept. However, there is much for the operator to understand about the setup, operation and maintenance. The purpose of this manual is to help operation personnel gain that understanding. In the long run, increased understanding of the machine will result in reduced downtime, increased safety and maximum quality production.

The following is a brief description of each section of this manual:

INTRODUCTION-Section 1 explains the format and contents of each section of this manual. Machine warranty, statement of limited liability and OSHA concerns are also discussed.

SAFETY-Section 2 consists of general information and hazards regarding work area safety, operating safety, and maintenance safety.

IMPACT TRIMMERS (MODELS 10039-10042, 10051, AND 10080) Section 3 covers Impact Trimmer installation and setup, sequence of operation; operating controls and electrical, electrical, operation and maintenance safety; equipment options, mechanical, pneumatic, electrical, hydraulic (10051 Trimmer only) maintenance and troubleshooting procedures.

SPINOFF TRIMMERS TO INCLUDE POSITIVE BUCKET SHUTTLE, AND CABLE CONVEYOR
Section 4 covers the Spinoff Trimmer and consists of installation and setup, sequence of operation, operating controls and electrical, mechanical, pneumatic, electrical maintenance and troubleshooting procedures.

NOTE: The following sections (1.3, 1.4, 1.5) are terms and conditions included in the Johnson Controls documents of sale. They set forth certain obligations of Johnson Controls and the purchaser related to the sale of each trimmer.

1.3 MACHINE WARRANTY
The Seller Warrants the Equipment, so far as the same is of its manufacture, to be free from defects in material and workmanship, when used by the Purchaser under normal conditions, for one year after date of shipment from Seller's place of manufacture or 4,000 hours of operation, whichever occurs first. The Seller's obligation under this warranty may, at its option, be discharged by repairing without charge such Equipment or the defective part thereof, F.O.B. Seller's designated point of return or at Seller's option, by furnishing without charge, F.O.B. its place of manufacture, a similar part to replace any of its own manufacture which proves to have
been defective. The Seller shall also have the option of requiring the return of the defective material (transportation prepaid by customer) to establish the claim. The Seller’s obligation hereunder shall be confined to such repair or replacement and shall be further conditioned upon the Seller’s receiving within said warranty period immediate written notice from the Purchaser upon discovery of any such defect, and return of defective part within 30 days.

The warranties and remedies set forth herein constitute the only warranties of Purchaser with respect to the Equipment and the Purchaser’s only remedies in the event such warranties are breaches.

They are in lieu of all other warranties, written or oral, statutory, expressed or implied, including without limitation the warranty of merchantability or fitness for a particular purpose. This agreement states the entire obligation of the Seller in connection with this transaction and in no event will the Seller have any obligation of liability for damages, including but not limited to indirect, special, or consequential damages such as loss of anticipated profits or other economic loss arising out of or in connection with the use, performance, existence, furnishing or functioning of any item of equipment or services provided for in this agreement.

The warranties herein specified shall not apply if the failure of any purchased item to satisfy such warranty is due to accident, neglect, misuse, improper transportation arranged by Purchaser or its agent, or causes other than ordinary use including operation contrary to Seller’s operating instructions or if any person other than Seller’s authorized personnel shall modify, adjust or repair such unit.

It must be understood that Purchaser assumes full responsibility for the overall effectiveness and efficiency of the operating environment in which the Equipment is to function, as well as the responsibility for the cooperation of its personnel. The warranty obligations of the Seller with respect to Equipment, parts or accessories not manufactured by the Seller shall in all respects conform and be limited to the warranty extended to the Seller by its supplier.

The mechanical and electrical equipment shall not be operated contrary to operational instructions furnished by the Seller to the Purchaser.

Service calls required on replacement parts are not covered under this warranty.

1.4 STATEMENT OF LIMITED LIABILITY

The seller shall not be liable for loss or damage due to delay in manufacture or delivery or due to inability to manufacture or deliver resulting in either case from any cause beyond the Seller’s control, including, but not limited to, compliance with any regulations, orders or instructions of any federal, state or municipal government, or any department or agency thereof, acts of God, acts or omissions of the Purchaser, inability to successfully produce the required parts or products, acts of civil or military authority, fires, strikes, factory shutdowns or alterations, embargoes, war, riot, delays in transportation or other inability due to causes beyond the control of Seller to obtain necessary labor, manufacturing facilities or materials from the Seller’s usual sources. Delays resulting from any such cause shall extend delivery dates correspondingly.
1.5 EXPRESS CONTRACT OF INDEMNIFICATION

In accepting delivery and installation of this equipment, Purchaser specifically promises that it will not change, alter or modify the equipment or remove or render inoperable or unsafe any guards, shields, or other safety features of the equipment; or remove, obliterate, or obstruct any safety signs, or instruction labels; or fail, refuse or neglect to install any retrofit kits from time to time marketed or provided by Seller to improve personnel safety. Purchaser also specifically agrees that if it breaches any of such promises, or if it is remiss, negligent or deficient in maintaining the equipment or in hiring and training equipment operators or service personnel, the Purchaser will indemnify and hold harmless Seller from any and all types of actions, suits, claims, or demands, including products liability claims brought by Purchaser’s employees, or subrogation claims brought by Purchaser’s workmen’s compensation or health insurance carriers, for injuries or loss arising out of the operation, maintenance, repair, or other use of such equipment. Purchaser specifically agrees that this Express Contract of Indemnification is a condition of sale supported by adequate consideration and was read and understood by the Purchaser before purchasing and accepting delivery and installation of the equipment.

1.6 STATEMENT OF POLICY CONCERNING OCCUPATIONAL SAFETY AND HEALTH ACT

The Occupational Safety and Health Act of 1970 (OSHA) places the responsibility upon each employer to provide their employees a workplace free from recognized safety and health hazards. In designing and manufacturing its products, Johnson Controls undertakes to comply with a reasonable interpretation of the relevant OSHA standards in effect at the time.

Because of anticipated variations in the interpretation and enforcement of the OSHA standards, Johnson Controls assumes no liability for direct or consequential damages which may arise out of any failure of Johnson Controls equipment to comply with OSHA or any state equivalent thereof.

Johnson Controls desires that all its customers comply with their OSHA requirements and stands ready to assist them in achieving compliance. Please contact the Technical Service Department at 1-800-666-8852 (within U.S.A.) or 1-313-428-8371 or fax at 1-313-428-4300, if you need assistance.
SECTION 2 SAFETY

2.1 INTRODUCTION

Johnson Controls places great importance upon the safe operation of the machinery it supplies to its customers. Please take the time to read this chapter completely and thoroughly. Refer to it as often as necessary to ensure the safe operation of this machine—for you, and the safety of those persons working with you.

Only qualified operators and maintenance personnel are to work on this machine; this means personnel that have been trained and instructed in safe machine operations, as well as the purpose and proper use of all machine safety devices. All personnel should read about and be aware of the safety precautions and information presented in this manual.

All precautions have been taken to ensure the safety of personnel responsible for operating the trimmer. The operator must practice safe operation procedures at all times, on and around the machine. Safety signs are conspicuously placed in areas that may be potentially hazardous to personnel.

Johnson Controls has built a system of safety devices into the trimmer machine to help ensure its safe operation. No system of devices is a guarantee against careless or untrained operating personnel. The following precautions, if followed carefully and consistently, will provide a foundation for safe operation and maintenance of the machine.

Safe working conditions are readily achieved in blowmolding operations. However, they are a result of planning, knowledge, attention to detail, and determination of everyone involved that all in-plant procedures designed for safe operations will invariably be practiced.

NOTE: OSHA, company, or other requirements or regulations notwithstanding, safety must be a concern of each worker, and safe practices require his or her understanding and individual practice.

⚠️ WARNING

All Uniloy machine lines are to be operated with the prescribed safety devices (guards, interlocks, signs) properly positioned and in good working order as originally designed and installed.

The absence of these safety devices from a machine line which appears in any of our technical manuals, training programs, or sales media has been done strictly for display purposes only.
2.2 NOTES AND WARNINGS
Read and follow the Notes, Cautions and Warnings that appear throughout this manual:

NOTE: is used to emphasize essential operating and or maintenance information.

WARNING: a procedure or instruction which, if not observed, could result in damage or destruction of equipment, long term health hazard, injury, or death.

Follow proper lock out and tag out procedures as required by OSHA.

2.3 GENERAL PRECAUTIONS AND PERSONAL SAFETY
Ensure proper operation of all safety devices, especially safety gates and interlocks. Never defeat their purpose by attempting to override them. Maintenance and operating personnel must always check for proper operation of these devices prior to operation of the machine. Under no circumstances should they ever be removed, bypassed, or modified.

A. Keep guards and safety panels in place whenever the machine is operating. The guards protect the operator from both pinch points and high voltage. Do not remove guards unless the electrical power at the machine is locked out. Do not remove safety panels in order to work on or observe moving mechanisms while the machine is in operation.

B. Heed and maintain all safety signs. Safety instruction signs are fastened in conspicuous areas of the machine. They must be maintained so that they are easily readable. Operating and maintenance personnel must understand the safety instructions before they are permitted to work on the machine. Under no circumstances are the signs to be removed.

C. Check regularly to see that all safety and control indicators and lamps are in good working order.

D. Keep hands and hair free from all moving parts and pinch points. If there is an obstruction in the trim nest, open the safety doors, ensure the trimmer is stopped, then use a plastic or wooden stick, not metal, to break the jam-up.

E. Always wear the proper personal protection equipment when working on or around the machine.

F. Actively communicate with other personnel working on or around the machine. Do not start the machine without verifying that all other personnel are clear of the machine. Failure to do so could cause serious physical injury to another employee.
G. Verify all electrical grounding to prevent the possibility of an electrical shock or machine stoppage.

H. A safe work area is essential in any plant. Report any unsafe conditions to your supervisor or plant safety personnel immediately.

I. Keep the work area clean. Dirty areas tend to be unsafe. Clean up spilled resin pellets, oil or water immediately. Clean any excess oil or grease from the trimmer.

For maximum protection during service or maintenance, all power sources shall be disconnected and locked out with each having a lock for which there is only one key. This key must be in the possession of the person working on the trimmer. This prevents any other personnel from accidentally turning on the power while the equipment is being serviced.

- Familiarize yourself with the EMERGENCY STOP pushbuttons and electrical and pneumatic disconnects. Be certain the safety devices on the equipment are working properly and know how to use them.

- Instructions and drawings provided by the equipment manufacturer must be used when performing adjustments and maintenance functions.

- Safety is the responsibility of everyone. If there is a co-worker in an unsafe situation, remind that person of the potential danger involved.

- Molded or freshly molded plastic (or parts) can cause serious burns. Protect your skin from contact with hot plastic by using protective gloves, coveralls, or sleeve extensions.

- Do not wear loose-fitting clothes or jewelry that may snag or get caught in the belt or other moving parts of the trimmers.

- Only qualified operators and technicians are to operate or perform maintenance on the trimmers. Keep yourself and co-workers alert when operating trimmers, and when in the vicinity of trimmers that are operating or in maintenance. Use proper lockout procedures whenever maintenance is being performed. Ensure the trimmer is shut down prior to the removal of any jammed material.

- Use only approved devices for purposes of stepping, climbing or reaching. All such devices should conform to industrial safety regulations.

2.4 SAFETY SIGNS

Safety signs are mounted to the trimmers. These signs point out areas and components of potential danger. Never remove or paint over these signs. Figure 2-1 shows the safety signs and their drawing numbers. The locations of these safety tags on the trimmers can be found in your specific parts list book catalog in the trimmer section under safety signs.
INSTRUCCIONES DE SEGURIDAD

No opere sin el debido entrenamiento y supervisión. Verifique las funciones de seguridad al inicio de cada turno. Consulte con el fabricante antes de alterar los circuitos eléctricos, hidráulicos o neumáticos.

SAFETY INSTRUCTIONS

Do not operate without proper training and supervision. Check safety functions at start of each shift. Consult manufacturer before altering electric, hydraulic, or pneumatic circuit.

CUIDADO

Las correas en movimiento pueden causar desmembramiento a magulladuras. no opere sin los protectores en su lugar.

WARNING

Moving belts can crush and dismember. Do not operate without guard in place.

PELIGRO

ALTO VOLTAGE
Causa choque, quemaduras o la muerte. Apague y cierre el interruptor de la fuente principal de energía eléctrica antes de efectuar el mantenimiento. No opere la máquina con las puertas blindadas abiertas sin las cubiertas.

DANGER

HIGH VOLTAGE will shock, burn or cause death. Turn off and lock out main power disconnect before servicing. Do not operate machine with encloser doors opened or covers removed.
Figure 2-1A: Safety Signs

SECTION 2

**PELIGRO**
Cuchillas causan lesiones graves. Mantenga las manos retiradas.

**DANGER**
Knives will cause severe injury. Keep hands away.

**MUCHO CUIDADO**
CADENA EN MOVIMIENTO puede agarrar y enredar, y inutilizar no opere la máquina sin los protectores en sitio.

**WARNING**
MOVING CHAIN can grab, mangle and dismember. Do not operate without guard in place.

**PELIGRO**
Las cuchillas en movimiento causan lesiones graves. Mantenga las manos retiradas de la máquina mientras está en funcionamiento. Nunca extienda los dedos alrededor de los protectores.

**DANGER**
Moving knives will cause severe injury. Keep hands out of machinery while in operation. Never reach around guards.
SECTION 3 SYSTEM DESCRIPTION – IMPACT TYPE TRIMMERS (MODELS 10039, 10040, 10041, 10042, 10051, AND 10080)

3.1 INSTALLATION AND SETUP
The location of the equipment has been indicated in the machine line layout supplied by Johnson Controls, Inc.

The trimmer is placed at or below the blowmold machine in accordance with the layout. The location depends on the method for removal of the containers from the blowmold machine and delivery to the trimmer.

3.1A LEVELING THE TRIMMER
The trimmers are leveled with the cooling bed, or blowmold machine. (See Figure 3-3.) Level the trimmer by placing the level on top of the trimmer frame lengthwise, and adjust the four corner legs. Then place the level crosswise on top of the trimmer frame and adjust the four corner legs. Recheck and adjust until the trimmer is level. Adjust the two center legs (10039-51 models) or 10 center legs on the 10080 trimmer until they just reach the plant floor. After the machine is level, tighten the lock nuts on the adjustable legs.

3.1B ELECTRICAL CONNECTION
The electrical power for the trimmers is received from the blowmold electrical cabinet via a external circuit plug/outlet located at the front of the blowmold machine. The three-phase power is run into the trimmer electrical cabinet and connected to the trimmer disconnect directly from the blowmolder or by way of the cooling bed.

(See electrical schematic for proper connection of power feed.)

3.1C PNEUMATIC CONNECTION
The pneumatic supply INPUT connection is made at the inlet side of the trimmer pressure regulator mounted on the trimmer. (See pneumatic schematic for connecting input.)

3.2 SEQUENCE OF OPERATION
This sequence of operation describes one complete cycle of molded parts or containers being transported from the blowmold machine through the trimmer.

1. The molded containers are removed from the blowmold machine by the swing arms and delivered to the cooling conveyor or directly loaded to the trimmer.

2. If required, the cooling bed conveys the containers to the trimmer buckets, or a pick-and-place mechanism transfers the containers directly from the cooling bed into the trimmer buckets.

3. The trimmer indexes the buckets to allow a predetermined number of containers to be trimmed per cycle.
SECTION 3

4. The containers are indexed to the trim station where the platens lift the container(s) into the upper trim tools. The flash is trimmed away and directed to the scrap handling system.

5. The container is then lowered and transported to a leak detector (optional), which pressurizes the containers with air to test for leaks.

6. If the container passes the test, it continues to the customer's handling device.

7. If the container does not pass the leak detector test it is transferred to a reject area.

8. If the leak detector is not installed, the trimmer either blows or pushes the container off the trimmer conveyor into a customer's handling device.

3.3 OPERATING CONTROLS AND ELECTRICAL

There are two sets of operating controls for the trimmer that are conveniently located on the unit. (See Figure 3-1.) The following are the operating controls for the Impact trimmers:

TRIMMER DISCONNECT: This disconnect isolates electrical power to the trimmer.

EXTERNAL CIRCUIT/EMERGENCY STOP pushbutton

RESET/ pushbuttons

This enables operation of the manual and auto functions when the safety circuits are in a safe condition.

MANUAL, OFF, AUTO, selector switch

MANUAL mode Allows the operator to jog the trimmer.

AUTO mode Allows the trimmer to operate automatically with upstream equipment, i.e., the cooling bed or blowmolder.

OFF mode Defeats movement of the trimmer.

BLOW OFF/PUSH OFF selector switch

BLOW/PUSH #1 (optional) Allows ejection of containers to the customer handling device.

BLOW/PUSH #2 (optional) Delays one of the ejection ports on multistation trimmers to prevent a jam-up at the ejection chute.

LEAK DETECTOR switch: Starts leak detector testing function.
Figure 3-1: 10039-42, 10051, 10080 Impact Trimmer Operating Controls
3.3A AUTOMATIC OPERATION
Use the following sequence to start and operate the trimmer in automatic mode.

1. Move TRIMMER DISCONNECT switch to the on position.
2. Ensure all safeties are intact and functioning properly.
3. Set MANUAL/OFF/AUTO selector switch to AUTO mode.
4. Set BLOW/PUSH selector switch to BLOW/PUSH 1 or 2 as required by the machine.
5. Press RESET pushbutton (reset pilot should illuminate).
6. Trimmer will not start cycling until the signal to initiate is received from upstream equipment.

3.3B MANUAL OPERATION
To set the trimmer in manual mode perform the following steps:

1. Move TRIMMER DISCONNECT switch to the ON position.
2. Ensure all safeties are intact and functioning properly.
3. Press RESET pushbutton (reset pilot should illuminate).
4. Select manual mode.
5. Push START pushbutton to jog trimmer (trimmer will continue to move as long as button is pressed).

3.4 OPERATION AND MAINTENANCE SAFETY
The following subsections discuss the operating and maintenance safety for the Impact Trimmers.

3.4A PINCH POINTS
Keep hands free of moving parts and pinch points. The platen, conveyor, chains, belts, and pushers are all potential pinch points. Use extreme caution when working in or around these areas.

3.4B GUARDING SYSTEM (IMPACT TRIMMER)
Ensure proper operation of all safety doors and interlocks. Do not defeat their purpose by attempting to override them. Keep all fixed guards secured in place. Maintenance and operating personnel must always check for proper operation of these devices prior to operating the machine. Under no circumstances should they ever be removed, bypassed, or modified.

To check the trimmer interlock safety doors at the beginning of each shift the operator should close all of the safety doors around the trimmer with the power “On” (the trimmer reset amber light “On.”) and the trimmer in operation. Lift or slide the first door and check to see if the amber reset warning light beside the control panel goes off and the trimmer stops. Then close the door and push the reset button. The amber light should turn on and trimmer should begin to operate. Repeat this procedure for each of the trimmer safety doors. If any safety door interlock
Figure 3-2: Electrical Lockout and Tag Out
is not working properly, first check the door's limit switch and replace it if it does not de-ener-
gize the control circuit when the door is open. If the power "On" light remains on when the
safety door is open, check the control circuit to see if it has been shorted or bypassed with a
jump wire at the control panel. Also check safety interlock switch to see if it has been bypassed
or defeated. This guarding system must be maintained and checked on a daily basis.

3.4C ELECTRICAL
Return components to home position and bleed off all hydraulic and/or pneumatic
pressure to prevent any unexpected movement. Lockout and tag all sources of power
prior to performing any maintenance on the trimmers. See Figure 3-2.

Read and follow the information on the equipment signs. Do not remove or paint over them,
and replace when unreadable.

Use extreme care when working around limit switches. If electrical power is not locked out, any
inadvertent movement of a limit switch may cause unexpected component movement.

3.4D OBSTRUCTION IN THE TRIMMER
If there is an obstruction in the trimmer, open the safety doors, make sure the trimmer stops and
the amber reset button/light goes out. Use a plastic or wood stick (or other safe tool) to clear the
jam-up.

3.5 OPTIONS
The leak detector is an optional piece of equipment for the Impact Trimmers. The leak detector
tests the containers by pressurizing them with air, checking for any pressure difference during a
specific time.
Figure 3-3: Leveling The Trimmer
Lockout all power prior to adjusting components on the trimmer.

Over-tension or under-tension on the chains and belts will produce excessive wear on bushings and bearings causing a premature failure of drive components.

3.6 MECHANICAL MAINTENANCE (IMPACT TRIMMER)
Mechanical maintenance for the trimmer consists of adjustments to the bucket chain, index chain, drive belt, trimmer timing, trimmer tooling, lubrication, removal of unwanted bottles and flash, and a visual inspection of the entire trimmer.

3.6 A TRIMMER MAINTENANCE
Routine preventive maintenance on Uniloy trimmers, as with all machinery, is absolutely imperative for longevity, efficiency and safety. Many warranty claims are a result of improper or non existent maintenance. It is recommended that maintenance logs be developed and used for all the routine maintenance as well as unscheduled down time. Regular maintenance will help improve efficiency.

It is recommended that prior to each shift the operator inspects, cleans and removes bottles, parts or flash that may have been left or stuck in the trimmer mechanism during the last shift. All the safety interlocks must be checked at the start of each shift to ensure they are in safe operating condition.

The operator should inspect the entire trimming unit on a daily basis to assure that all components and assemblies are in good working order, check for fluid leaks, air leaks, sprocket misalignment, loose chains and belts or worn parts. The operator should then visually inspect the trim tooling and buckets for damage or abnormal wear.

<table>
<thead>
<tr>
<th></th>
<th>Grease Zerks (Lube w/ 2 pumps)</th>
<th>Rack (Inspect)</th>
<th>Oil Filters (Replace)</th>
<th>Gear Box Oil (Change)</th>
<th>Chains (Check Tension)</th>
<th>Belts (Check Tension)</th>
<th>BRAKE MTRS (Inspect)</th>
<th>Brakes (replace)</th>
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|        | Weekly                          | 6000 hrs       |                       |                       |                        |                       | 2000 hrs             | 2000hrs           |

3-8 •
3.6 B INSTALLATION DATA - DIRECT ACTING BRAKE SIZE XH
The stator-armature air gap is factory set and requires no resetting, even when installing a new friction disc. However, as with any electro-mechanical device periodic inspection will insure optimum performance. Recommended inspection procedure is as follows:

1. Inspect brake disc every 90 days. The disc should be replaced when worn to .220 thickness.
2. Inspect brake disc for general condition, and signs of unusual wear. Remove any build-up of wear particles.
3. Inspect all bolts and hubset screws for tightness.

⚠️

1. Brake failure may be caused by improper application and/or lack of maintenance.

2. Additional precautions shall be taken to insure safety of personnel if injury could be caused by brake failure.

3. Do not energize brake with cover assembly removed. Wound stator can be damaged, voiding warranty.

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**Hub Location Dimension**

- Set Screw
- Key
- Spline Hub
- NEMA Fractional “C” Face Endbell

**Brake Mounting Face**
3.6B DIRECT ACTING BRAKE DISASSEMBLY AND REPAIR

Step 1. Remove the (2) cap screws that hold the winding assembly to the brake housing assembly.
Step 2. The brake will now separate into (3) pieces: the winding assembly, a splined hub, and the brake housing assembly.
Step 3. Position the splined hub onto the motor shaft. Shoulder the spline onto the hub away from motor. Once into position, tighten set screws.
Step 4. Install brake housing assembly onto the motor. Move the disc onto the splined hub, then release the manual release levers to free brake disc. This will allow the alignment of brake and motor registers and housing mounting holes with the motor mounting holes. Tighten the (2) mounting bolts with an allen wrench.
Step 5. Thread the winding assembly leads through corresponding lead hole in housing assembly. Line up the (2) holes in the winding assembly with the (2) mating holes in the housing assembly. Install the winding assembly cover, and the (2) winding assembly mounting bolts. Connect the brake leads to the motor leads using conduit. The brake is now ready for operation.

Brake lining installation: To replace the disc in housing assembly, a "Down and Turn" pressure releases the compression ring. The ring, springs, armature and brake disc may now be removed. Reassemble in reverse order.
**Figure 3-4: Direct Acting Brake Module Layout**
NOTE: 10080 models have detent clutch on the index shaft, and a detent torque limiter on the deflash drive. The trimmer must be cycled one complete revolution to assure that the clutches are engaged (clutch tension is preset at the factory) properly before any adjustment is made to the chain.

1. Turn off electrical power and lock out disconnect switch. Test controls for no motion.
2. Loosen the jam nuts on the adjusting rod(s) of the bucket chain tighter located at the load end of the trimmer rail.
3. Turn the adjusting rods to either tighten or slacken the bucket chain. Adjust the bucket chain so there is a 1/4 to 3/8 inch deflection. Proper adjustment is indicated by smooth operation of the bucket chain. There should be no bouncing or jumping of the bucket chain.
4. After the adjustment has been made tighten the jam nut(s) on the adjusting rod(s) and recheck the chain deflection.
5. Assure the area is safe. Remove the safety lock and turn on the electrical power.
Adjustment points (both sides of trimmer)

**Figure 3-4A:** Bucket Chain Adjustment

Adjustment points

Brake Lever

**Figure 3-4B:** Drive Belt Adjustment
**Figure 3-4C**: Platen Chain Adjustment
Platen Chain Adjustment (See Figure 3-4C.)
This procedure is performed in the same manner as the bucket chain adjustment.

**NOTE:** 10080 models have detent clutch on the Index shaft, and a detent torque limiter on the deflash drive. The trimmer must be cycled one complete revolution to assure that the clutches are engaged (clutch tension is preset at the factory) properly before any adjustment is made to the chain.

1. Turn off electrical power and lock out disconnect switch. Test the controls for no motion.
2. Loosen the take-up sprocket located between the drive sprocket and the crank sprocket.
3. Adjust the take-up sprocket 3/8 to 1/2 inch (10039-10042) and 1/4 to 3/8 inch for 10080 trimmers until there is a deflection of 3/8 to 1/2 inch. Proper adjustment is indicated by smooth operation of the drive chain. There should be no bouncing or jumping of the drive chain.
4. Tighten the take-up sprocket jam nut(s) and recheck the chain deflection.
5. Assure the area is safe. Remove the safety lock and turn on the electrical power.

**Idler Sprocket Adjustment** (platen, index chains)
For minor adjustments, adjust the idler sprocket by either loosening the lock nut and rotating the adjusting screw to tighten or loosen the chain, or loosen the idler sprocket mounting then adjust within the range of the slotted holes, then retighten.

**Drive Belt Adjustment**

1. Turn off electrical power and lock out disconnect switch. Test the controls for no motion.
2. Remove the belt cover.
3. Loosen the locking nuts (10039-10042) on the back of the adjustment plate or loosen the locking nut on the bottom side of the adjusting rod (10080).
4. Rotate the nut(s) on the threaded rod to loosen or tighten the belt as required. The belt deflection adjustment should be approximately 5/16 inch. Tighten the locking nut(s) when adjustment is complete.
5. Replace the cover.
6. Assure the area is safe. Remove the safety lock and turn on the electrical power.

**Index Chain Adjustment Model 10039-10042, 10080 Single and Double Index**

This procedure assures that the trimmer is in time

**Note:** 10080 models have detent clutch on the Index shaft, and a detent torque limiter on the deflash drive. The trimmer must be cycled one complete revolution to assure that the clutches are engaged (clutch tension is preset at the factory) properly before any adjustment is made to the chain.
Figure 3-4D: Jack Shaft Sprocket Adjustment

Figure 3-4E: Chain Adjustment for 10041 Impact Trimmers
1. Turn off electrical power and lock out disconnection switch. Test controls for no motion.

2. Loosen the Idler sprocket adjustment locking nut(s) and slide the idler sprocket mount forward or backwards (10039-10042) or turn the adjusting bolt clockwise or counter clock wise (10080) to loosen or tighten the idler sprocket against the index chain, then retighten the mounting or adjusting bolts. Proper tension is indicated by smooth operation of the index chain, deflection should be 1/4 to 3/8 inch. There should be no bouncing or jumping of the index chain.

3. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

Bucket Chain Idler Adjustment Model 10041, 10042 Triple index (Figure 3.4E)

This procedure assumes that the trimmer is in time

1. Turn off electrical power and lock out disconnection switch. Test controls for no motion.

2. Remove safety cover

3. Adjust the Idler sprocket by rotating the adjusting bolt clockwise or counter clock wise to loosen or tighten the idler sprocket against the index chain, then re-tighten the mounting or adjusting bolts. Proper tension is indicated by smooth operation of the index chain, deflection should be 1/4 to 3/8 inch. There should be no bouncing or jumping of the index chain.

4. Replace safety cover

5. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

Jack Shaft Chain Adjustment Model 10041 Triple index (Figure 3.4D)

This procedure assumes that the trimmer is in time

1. Turn off electrical power and lock out disconnection switch. Test controls for no motion

2. Remove safety cover

3. Loosen the four bolts that mount the jack shaft sprocket to the mounting plate. Rotate the adjusting bolt clockwise or counter clockwise to loosen or tighten the jack shaft chain, then align chain and re-tighten the jack shaft sprocket four mounting bolts. Proper tension is indicated by smooth operation of the index chain, deflection should be 1/4 to 3/8 inch. There should be no bouncing or jumping of the jack shaft chain.

4. Replace safety cover.
Figure 3-4F: Impact Trimmer Timing Points
3.6D TRIMMER TIMING

(R) Trimmer Timing Procedure 10039-10042 Single and Double Index (See figure 3-4f)

1. Turn off electrical power and lock out disconnection switch to the trimmer. Test controls for motion. Remove all shrouding surrounding the gearbox and transfer mechanism. Visually check for worn, broken chains or sprockets and replace or align them as required.

2. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

⚠️ Be aware of potential pinch points. Keep clear of unguarded moving components.

NOTE: By loosening the four bolts on the Index sprocket hub or unlocking the transtorque minor timing adjustments can be made by realigning the trim buckets to the trim tooling and locking the index sprocket adjusting hub or transtorque assemblies.

3. Apply control power and jog the trimmer slowly to locate the master link on both indexing chain and the platen chain. When both master links are in an accessible position - stop.

4. Turn off electrical power and lock out disconnect switch. Test controls for no motion. Disassemble master link from index chain and remove chain.

5. Release the drive brake, by manually rotating the pointers top and bottom of the motor toward the trimmer. Remove the drive belt cover.

6. Manually rotate the gearbox by pulling the bottom of the drive belt towards the motor. (Beware pinch points between belt and pulley.) Weight of platen may cause belt and pulley to move once the brake is removed. Continue to rotate until platen is at bottom of stroke.

7. Disassemble master link and remove the platen chain from the gear box sprocket.

8. Rotate the gearbox manually until the index sprocket rotates approximately 180°, which is one-half of an index motion.

9. Reinstall the Platen chain

10. Manually rotate the gearbox until the index sprocket completes its revolution and just stops.

11. Manually move the bucket chain until a bucket is aligned properly with the trim tooling. Normally this is the center of the bucket to the center of the trim nest.

12. Center (as close as possible) the four (4) bolts in the slotted holes at the adjustment hub on the index sprocket and tighten, or tighten the transtorque hub.

13. Reinstall the index chain.
14. Adjust the index chain idler sprocket and tighten.
15. If additional adjustment is necessary, loosen the adjustable hub or transtorque on the index shaft and reposition to align.
16. Ensure the area is safe. Remove the safety lock and turn on the electrical power.
17. Jog the trimmer through a few cycles and check alignment.

NOTE: After timing or retiming has been completed, check all chains and belts for proper tension. (Refer to 3.6A)

18. Turn off the electrical power and lockout disconnect switch. Test controls for no motion. Reinstall all shrouding and guards. Ensure the area is safe. Remove safety lock and turn on electrical power.

Trimmer Timing 10041 Triple Index (See Figure 3-4D.)

1. Turn off electrical power and lock out disconnect switch to the trimmer. Test controls for no motion. Remove all shrouding surrounding the gearbox and transfer mechanism. Visually check for worn, broken chains or sprockets and replace or align as required.
2. Ensure the area is safe. Remove safety lock and turn on electrical power.

Be aware of potential pinch points. Keep clear of unguarded moving components.

3. Apply control power and jog the trimmer slowly to locate the master link on both indexing chain and the platen chain. When both master links are in an accessible position - stop.
4. Turn off electrical power and lock out disconnect switch. Test controls for no motion. Disassemble master link from index chain and remove chain.
5. Release the drive brake, by manually rotating the pointers top and bottom of the motor toward the trimmer. Remove the drive belt cover.
6. Manually rotate the gearbox by pulling the bottom of the drive belt towards the motor. (Beware pinch points between belt and pulley.) Weight of platen may cause belt and pulley to move once the brake is removed. Continue to rotate until platen is at bottom of stroke.
7. Disassemble master link and remove the platen chain from the gear box sprocket.
8. Rotate the gearbox manually until the index sprocket rotates approximately 180°, which is one-half of an index motion.
9. Reinstall the Platen chain
10. Manually rotate the gearbox until the index sprocket completes its revolution and just stops.
11. Manually move the bucket chain until a bucket is aligned properly with the trim tooling. Normally this is the center of the bucket to the center of the trim nest.

12. Center (as close as possible) the four (4) bolts in the slotted holes at the adjustment hub on the index sprocket and tighten, or tighten the transtorque hub.

13. Reinstall the index chain.

14. Adjust the index chain idler sprocket and retighten.

15. If additional adjustment is necessary, loosen the adjustable hub or transtorque on the index shaft and reposition to align.

16. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

17. Jog the trimmer through a few cycles and check alignment.

**NOTE:** After timing or Retiming has been completed, check all chains and belts for proper tension. (Refer to 3.6A)

18. Turn off the electrical power and lockout. Test controls for no motion. Reinstall all shrouding and guards. Ensure the area is safe. Remove safety lock and turn on electrical power.

**Trimmer Timing Procedure 10080 Trimmer**

1. Turn off electrical power and lock out disconnect switch to the trimmer. Test control for no motion. Remove all shrouding surrounding the gearbox and transfer mechanism. Visually check for worn, broken chains or sprockets and replace or align as required.

2. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

Be aware of potential pinch points. Keep clear of unguarded moving components.

**NOTE:** By unlocking the transtorque minor timing adjustments can be made by realigning the trim buckets to the trim tooling and locking the index sprocket adjusting hub or transtorque assemblies.

3. Apply power and jog the trimmer slowly. Locate master link on the bucket indexing chain. Turn off electrical power and lock out disconnect switch to the trimmer. Test control for no motion.

4. Remove the indexing chain

5. Release the drive brake by manually rotating the pointers top and bottom toward the trimmer.

6. Rotate the gearbox by pulling on the drive belt to rotate the sheaves. Beware of pitch points between belt and pulley. Continue to rotate the gear until the platen is in the full down position.
7. Remove the main drive chain.

⚠ Be aware of potential pinch points. Keep clear of unguarded moving components.

8. Rotate the gearbox until the platen sprocket on the output side of the gearbox causes the index sprocket (center hub transtorkue) to complete one half of a full index motion.


10. Rotate the gearbox until the index output shaft completes its full index motion and stops.

11. Loosen the transtorque on the bucket chain sprocket and rotate the bucket chain until the bucket(s) is aligned with the trim tooling.

12. Reinstall the index chain.

13. Tighten the transtorque hub on the bucket chain sprocket.

14. Adjust the index chain idler sprocket and tighten.

15. If additional adjustment is necessary, loosen the adjustable hub or transtorque on the index shaft and reposition to align.

16. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

17. Jog the trimmer through a few cycles and check alignment

**NOTE:** After timing or retiming has been completed, check all chains and belts for proper tension. (Refer to 3.6A)

18. Turn off the electrical power and lockout. Test control for no motion. Reinstall all shrouding and guards. Apply electrical power as required.

19. Reinstall all shrouding and guards. Ensure the area is safe.

20. Remove the safety lock and turn on the electrical power.

Retiming 10039-10041 (refer to timing procedure above) 10042, 10080 Trimmer Indexes

**NOTE:** 10080 models have detent clutches used on the Index shaft, the indexer and on the bucket chain shaft of the trimmer. The trimmer must be cycled one complete revolution to assure that the clutches are engaged (clutch tension is preset at the factory) properly before any adjustment is made to the chain.

If the trimmer to be retimed does not need to have links removed from the chain or have a chain replaced, the following procedure should be used. Loosen the four bolts on the Index sprocket hub or unlock the transtorque on the index output sprocket or bucket chain sprocket. Realigning the trim buckets to the trim tooling and then lock the index sprocket adjusting hub or transtorque assemblies. If this procedure still does not put the trimmer into time, follow the timing procedures for your specific model above.
1. Turn off electrical power and lock out disconnect switch to the trimmer, test controls for no motion, and remove all shrouding surrounding the transfer mechanism. Visually check for worn, broken chains or sprockets and replace parts or align as required.

⚠️ Be aware of potential pinch points. Keep clear of moving components.

2. Inspect the bucket chain and make sure that the chain is properly adjusted before continuing to the next step. (Refer to bucket chain adjustment 3.6A)

3. Make sure the platen is in the full down position

4. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

4. Jog the trimmer (this can be done either by depressing pilot pressure on the trim cylinder valve, or by pressing the trimmer jog selector switch) so the trim platen is level with the bucket side rail.

5. Manually move the bucket carrier in the direction of travel until the bucket(s) are aligned with trim tooling.

6. Jog platen to the full up position and then down causing the index cylinder to extend and retract.

7. Set cylinder stops at both ends of the index cylinder to keep bucket(s) in time.

**NOTE:** Select one bucket after aligning to the trim tooling and make a mark on the side rail to align with that bucket(s) position. This will enable you to use the mark to retiming the trimmer when necessary.

8. Next set the deceleration valve cam follower so it will slowly ride up the index cylinder cam. Cushion the end of the stroke before to coming to a complete stop against the rear stop screw.

**NOTE:** Make sure that the deceleration valve plunger is not bottomed out. There should be some play to ensure that the valve will not interfere with the cylinder stop cam coming to rest against the adjustable stop screw

9. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

10. Jog the trimmer through a few cycles and check alignment.

**NOTE:** After timing or retiming has been completed, check the bucket chain for proper tension. (Refer to 3.6A bucket chain adjustment)
11. Turn off the electrical power and lockout disconnect switch. Test controls for no motion.
12. Reinstall all shrouding and guards.
13. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

Retiming the 10051 Trimmer

1. Make sure the platen is in the full down position.
2. Manually move the bucket(s) in the direction of travel to the index mark placed on the trimmer side rail used for the initial timing set-up.

10051 Trimmer Tooling Set-up Refer to ADJUSTING TRIM TOOLING (IMPACT TRIMMER) 3.6C

NOTE: Reduce pressure to the trim cylinder by lowering the system pressure until this set up is complete.

10051 Hydraulic pressure set-up

1. Set the regulator from the main pump to 1100psi for the main system operating pressure.
2. Set the trim cylinder pressure reducing valve to 1100psi
3. Index cylinder pressure should be set as follows: Set the pressure reducing valve (refer to Figure 3-7) by slowly opening the valve until the index rack operates smoothly while maintaining a low enough pressure that the operator would be able to stop the bucket(s) by hand.

3.6E ADJUSTING TRIM TOOLING

Trim tooling consists of the upper “trim steels” and lower “nest section.” Closing the upper and lower nests trims off flash around the edge of the container and handle areas where applicable. The upper trim section is fixed but has adjustable trim steels and neck nest. The top tail trim and the bottom tail nest move forward or backward in a precentered, slotted keyway. (See Figure 3-5A-D.) To adjust the tooling perform the following steps:

1. Place a newly formed trimmed container (one that has not had time to shrink) in the trimmer conveyor bucket.
2. Turn off electrical power and lockout the disconnect for the trimmer. Check controls for no motion. Remove the belt guard, and release the motor brake (See Figure 3-6). Manually move the belt and adjust the bottom neck nest to within 1/16 in. of the bottom surface of the container. Ensure that the belt is at the proper tension, and install all the belt guards.

Be aware of potential pinch points. Keep clear of unguarded moving components.
**Lower neck and handle adjustable plate**

**Figure 3-5A:** Lower Neck and Handle Nest Section

**Upper neck and handle adjustable trim steels**

**Figure 3-5B:** Upper Nest Trim Steels with Individual Adjustment
Figure 3-5C: Lower tail section

Figure 3-5D: Upper tail nest section
Figure 3-6: Brake and gearbox
3. Adjust the neck nest so that the container aligns with the stationary handle trim in the up position.

4. Adjust the top trim steels to within .040 of the container in the up position.

5. Position the tail nest to match the length of the container.

6. Adjust the top tail trim so that it will be flush with the bottom tail gripper and will snap off the tail flash of the container.

7. After the trim tooling is set, adjust the top S-bar to within 1/16 in of the container resting in the conveyor bucket(s).

8. Adjust all guide rods to ensure proper guidance into the trim nest.

9. Adjust the S-bar pickup rods to lift the S-bar as the nest picks the container from the bucket(s).

10. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

3.7 PNEUMATIC MAINTENANCE

The pneumatic maintenance for the trimmer consists of the leak detector system (air/water separator, filters, regulators), if installed. Refer to vendor leak detector manual for maintenance instructions.

3.7A BLOW/PUSH-OFF SYSTEM

The blow/push-off system is used to eject the container from the trimmer into the customer's handling device after the flash has been removed and the leak test (if installed) is successfully completed.

The blow/push-off system consists of a regulator set at 60psi, pusher blow-off solenoid valve, pneumatic actuators, and a blow-off nozzle(s) and flow (speed) control valves.

The only maintenance of this system is to the push-off cylinder. The cylinder can be rebuilt by use of a rebuild kit or through various replacement parts as needed.

The daily inspection of the cylinder(s) for air leaks, looseness of the cylinder rod and smoothness of operation will assist you in determining potential failure of this component before it occurs. Check to make sure that the paddle(s) are aligned and not prone to cause interference with any other assembly.

3.7B LEAK DETECTOR SYSTEM

The leak detector system uses air to pressurize the containers and check for any loss of pressure. The system consists of a main leak detector regulator, probe nose–cone regulator, solenoid valves, probe with nose cone, air/water filter and separator.

3.7C LEAK DETECTOR ADJUSTMENT (IMPACT TRIMMER)

Refer to the manual provided by the manufacture for the unit installed.
3.8 ELECTRICAL MAINTENANCE

3.8A TRIMMER DRIVE MOTOR CIRCUIT
For the location of the following electrical components refer to your specific Trimmer Parts List book. The trimmer drive motor circuit receives 3-phase power from the blowmold machine. The power is provided to the trimmer disconnect located at the trimmer electrical enclosure. After closing the disconnect contacts, power flows through three fuses, F107, F108, F109, to 101M contacts. Energizing the 101M coil closes the 101M contacts providing a path for power through the overload relay contacts to 101M trimmer drive motor. After the trimmer disconnect, each separate leg branches to a fuse (F104, F105, and F106) through motor contacts 102M, through three overload relays to the Airveyor motor.

3.8B CONTROL CIRCUIT
Three-phase power from the blowmold machine flows to the trimmer electrical enclosure to a single set of trimmer disconnect contacts. Closing the contacts provides a path for power to the door limit switches and two EMERGENCY STOP pushbuttons. From this main leg there are three parallel circuits consisting of two reset pushbuttons, two auto/manual selector switches, two amber reset lights, the MCR relay, MCR contacts, the S-bar limit switch, two START pushbuttons, two RUN/JOG pushbuttons, 101M and 102M motor control coils and contacts, and the counter.

The MCR relay establishes a holding circuit for the start circuit.

A leg from the MANUAL/AUTO selector switch provides power to two START pushbuttons, two RUN/JOG selector switches, 101M coil, 102M coil, and the indexer count circuit.

The EJECT circuit, LEAK DETECTOR and BOTTLE GATE circuits may vary depending on the model trimmer. Consult the electrical schematic for that model.

The type of control circuit may vary depending on the model. The older models use relay logic circuits, the newer models use the Allen-Bradley SLC 100, SLC 500 PLC, or Barber Coleman MACO 8000 circuits.

The SLC 100 processor unit contains the central processing unit, a battery-backed CMOS RAM memory, and a power supply. The SLC 100 processor has 10 inputs and 6 relay (hard contact) outputs with visual status indicators for each I/O point.

The SLC 500 processor unit contains the central processing unit, a battery-backed CMOS RAM memory, and a power supply. The SLC 500 processor I/O points vary depending on the application being applied. The SLC 500 processor uses LED indicators for all I/O points.

The MACO 8000 processor unit contains the central processing unit, using EEPROMS-solid state CAR and a power supply. The MACO 8000 processor I/O points vary depending on the application being applied. The MACO 8000 processor uses LED indicators for all I/O points.

The trimmer may be controlled by other control systems depending on customer requirements. Refer to your specific circuit diagram.
3.9 HYDRAULIC

The hydraulic system in this section is for the model 10051 trimmer. This is an open circuit hydraulic system made up of the following subsystems: power unit, index, trimming, and index alignment. (See Figure 3-7.)

- **Power Unit**—The purpose of the power unit is to supply clean hydraulic fluid to the hydraulic circuits. The components include a reservoir, electric motor-driven variable displacement pump, dump valve, filter, needle valve, gage, and accumulator.

- **Index Circuit**—The Index circuit controls the movement of the bucket chain. This is accomplished by a solenoid-controlled two-position directional control valve. The valve directs fluid to one side of the piston in the double-end cylinder for one motion, then to the other side of the piston of the double-end cylinder for the return motion.

- **Trimming Circuit**—The trimming circuit consists of a three-position, solenoid-controlled valve that directs fluid through a gear-type flow divider to twin single end cylinders connected in parallel. This circuit controls the movement of the platen at the trimming nest.

- **Indexing Alignment Circuit (Optional)**—The components of this circuit consist of a two-position, solenoid-operated directional control valve, and a single-end hydraulic cylinder. Fluid is directed through the two-position directional valve to the single-end cylinder, extending or retracting the cylinder depending on the position of the directional valve.

3.10 LUBRICATION REQUIREMENTS (See Figure 3-8A-C)

- **Lubrication Points (Zerk) - Use EP2 or equivalent - weekly**
  - 2 each at the end of index assembly stationary bearing zerk fitting.
  - 2 each at the end of index assembly take-up bearing zerk fitting.
  - 1 at the idler sprockets.
  - 1 at each tie bar (located on inside platen opening, total of 4)
  - 2 at the platen crank (1) on each side

- **Index Gearbox Oil**—To service the Index Gearbox, remove the belt guard. Locate the top fill plug and remove. Locate and remove the 3/8 inch overflow plug. Fill the gearbox from the top fill plug with 90W gear lube until the oil starts to come out the overfill hole. Reinstall the overfill and top fill plugs. Fluid should be changed every 6000 hours or once a year.

- **Main Gearbox**—To fill the main gearbox, remove the top fill plug. Fill with 90W oil until proper level is reached in the sight glass. Reinstall the fill plug. Fluid should be changed every 6000 hours or once a year.
10051 Lubrication Maintenance Procedures

- Hydraulic filter replacement should occur when fluid is changed—every 6000 hrs or once a year.
- Hydraulic fluid replacement should occur every 6000 hrs or once a year.
- Periodic lubrication of the following components (refer to Figure 3-8B) is necessary with EP2 grease or equivalent.
  - Rack - Weekly
  - Platen tie bar - Weekly
  - Stationary bearings - Weekly

The operator should inspect the trimming unit on a daily basis to ensure that all components and assemblies are in good working order. Check for fluid leaks, sprocket misalignment, loose bucket chains, or worn parts.

Figure 3-7: Hydraulic Schematic (10051 Trimmer only)
System Description – Impact Trimmer

SECTION 3

Figure 3-8A: 10051 Hydraulic Impact Trimmer Lube Guide
System Description – Impact Trimmer

SECTION 3

Figure 3-8B: 10039-10041 Impact Trimmer Lube Guide
Figure 3-8C: 10080 Impact Trimmer Lube Guide
Prior to each shift the operator is to inspect, clean and remove bottles, parts or flash that may have been left or stuck in the trimmer mechanism during the last shift and check all safety interlocks and guarding for proper operation.

The operator should inspect the trimming unit on a daily basis to assure that all components and assemblies are in good working order. Checking for fluid leaks, sprocket misalignments, loose chains, belts or worn parts.
## 3.11 TROUBLESHOOTING (10039-10042)

Use the following troubleshooting table. See section 2 on safety before starting trouble shooting work:

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power to trimmer</td>
<td>- Main breaker Off at machine</td>
<td>- Turn On main breaker</td>
</tr>
<tr>
<td></td>
<td>- External circuit Off at machine</td>
<td>- Turn On external circuit</td>
</tr>
<tr>
<td></td>
<td>- Fuse in machine main panel blown</td>
<td>- Replace blown fuse</td>
</tr>
<tr>
<td></td>
<td>- Interconnections between cooling table and machine and cooling table and trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Pushbutton contacts at trimmer not working properly</td>
<td>- Test and replace if faulty</td>
</tr>
<tr>
<td>Power to trimmer but trimmer will not run</td>
<td>- Main trimmer disconnect Off</td>
<td>- Turn trimmer On</td>
</tr>
<tr>
<td></td>
<td>- Interconnections between cooling table and machine and cooling table and trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Reset pilot off</td>
<td>- Check bulb and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Fuse in trimmer electrical panel blown</td>
<td>- Test Pushbutton and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Safety door open</td>
<td>- Replace fuse</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch defective</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch ajar</td>
<td>- Test limit switch and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Motor overload tripped</td>
<td>- Check safety switch alignment and align if needed</td>
</tr>
<tr>
<td></td>
<td>- Motor starters tripped</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Motor burned out</td>
<td>- Reset motor overload</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Brake coil not energized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Repair or replace motor</td>
</tr>
<tr>
<td>Symptom/Problem</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| Power to trimmer but trimmer will not run | - Brake on or stuck in  
- Brake coil not energized | - Check brake solenoid or coil and replace if needed  
- Replace or repair coil check for loose wiring |
| Buckets Don't move | - Power off  
- Safety doors open  
- Drive not motor running  
- Drive motor overload tripped  
- Drive motor starters tripped  
- Drive belt broken  
- Index chain broken  
- Bucket chain broken  
- Obstruction in chain  
- Gearbox output shaft and sprocket do not move  
- Bucket jammed in track | - Turn On power  
- Close safety doors  
- Check motor starter or overload  
- Reset motor overload  
- Reset motor starter  
- Replace drive belt  
- Replace link in chain or replace  
- Replace link in chain or replace  
- Remove obstruction  
- Drive belt broken, replace  
- Gearbox frozen, repair or replace  
- Gear box gears jammed, repair  
- Remove obstruction  
- Replace bucket  
- Straighten bent bucket |
### System Description – Impact Trimmer

**SECTION 3**

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Bucket out of alignment with trim tooling | - Trimmer is out of time  
- Bent buckets  
- Stretched chain  
- Worn sprockets  
- Chain out of adjustment  
- Idler sprocket tension incorrect  
- Index fine adjustment loose or out of adjustment | - Retime trimmer (refer to 3.6A-3.6B  
- Straighten or replace  
- Replace chain  
- Remove and replace  
- Refer to 3.6A  
- Refer to 3.6A or figure 3-4B  
- Refer to 3.6A Note, or 3.6B retiming 10039-42-80 trimmers |}

| Trimmer indexes but platen does not move | - Plastic caught in chain | - Remove plastic and inspect, realign components if needed Refer to 3.6A-3.6B |}

| Erratic Indexing | - Drive chain broken  
- Spline or sprocket damaged | - Replace chain  
- Repair or replace |}

| Push-off/Blow-off not operating or blowing all the time | - Counter not working  
- Limit switch LS-101 not working properly  
- Cam operated air valve input and duration not set properly  
- Blow solenoid not shifting  
**MACO/SLC**  
- Blow/Eject #1, #2 not enabled  
- SLC 100 jumper to S103 or S104 not connected or loose | - Test and replace  
- Inspect and replace  
- Set timer contact duration  
- Replace contact if burned or sticking. Replace solenoid  
- Test/replace  
- Push enable on TSA on enable screen |}

3-38
## System Description – Impact Trimmer

### SECTION 3

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push-off/Blow-off not operating or blowing all the time</td>
<td>- Check to see if enable bit is set properly</td>
<td>- Set enable bits</td>
</tr>
<tr>
<td>Trimmer shuts off when platen is down</td>
<td>- Bottles jammed in upper nest</td>
<td>- Open trimmer door and remove jammed bottles (machine should shut down because of jam up)</td>
</tr>
<tr>
<td>Push-off stops</td>
<td>- Jam-up in pusher station</td>
<td>- Defective limit switch - replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove bottles and restart trimmer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Align bottle chute with buckets</td>
</tr>
</tbody>
</table>
# Troubleshooting Guide 10051 (Hydraulic)

Use the following troubleshooting table. See section 2 on safety before starting trouble shooting work:

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power to trimmer</td>
<td>• Main breaker Off at machine &lt;br&gt;• External circuit Off at machine &lt;br&gt;• Fuse in machine main panel blown &lt;br&gt;• Interconnections between cooling table and machine and cooling table and trimmer disconnected. &lt;br&gt;• Pushbutton contacts at trimmer not working properly</td>
<td>• Turn On main breaker &lt;br&gt;• Turn On external circuit &lt;br&gt;• Replace blown fuse &lt;br&gt;• Connect interconnections between units &lt;br&gt;• Test and replace if faulty</td>
</tr>
<tr>
<td>Power to trimmer but trimmer will not run</td>
<td>• Main trimmer disconnect Off &lt;br&gt;• Interconnections between cooling table and machine and cooling table and trimmer disconnected. &lt;br&gt;• Reset pilot off &lt;br&gt;• Fuse in trimmer electrical panel blown &lt;br&gt;• Safety door open &lt;br&gt;• Door limit switch defective &lt;br&gt;• Door limit switch ajar &lt;br&gt;• No hydraulic pressure at system pump</td>
<td>• Turn trimmer On &lt;br&gt;• Connect interconnections between units &lt;br&gt;• Check bulb and replace if faulty &lt;br&gt;• Test Pushbutton and replace if faulty &lt;br&gt;• Replace fuse &lt;br&gt;• Close safety door &lt;br&gt;• Test limit switch and replace if faulty &lt;br&gt;• Check safety switch alignment and align if needed &lt;br&gt;• Close safety door &lt;br&gt;• Check pump and replace &lt;br&gt;• Check compensator adjust or replace</td>
</tr>
</tbody>
</table>
# System Description – Impact Trimmer

## 10051 (Hydraulic)

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power to trimmer but</td>
<td>- Manual dump valve open</td>
<td>- Close valve</td>
</tr>
<tr>
<td>trimmer will not run</td>
<td>- Insufficient pressure to index cylinder</td>
<td>- Increase index cylinder valve, Check or replace</td>
</tr>
<tr>
<td></td>
<td>- Carriage index solenoid valve jammed or inoperative</td>
<td>- Check, Test or replace</td>
</tr>
<tr>
<td></td>
<td>- Needle valve closed</td>
<td>- Open needle valve</td>
</tr>
<tr>
<td></td>
<td>- Index cylinder leaking internally</td>
<td>- Rebuild or replace</td>
</tr>
<tr>
<td></td>
<td>- Deceleration valve stuck in closed position</td>
<td>- Rebuild or replace</td>
</tr>
<tr>
<td>Buckets don’t move</td>
<td>- Power Off</td>
<td>- Turn power On</td>
</tr>
<tr>
<td></td>
<td>- Safety doors open</td>
<td>- Close safety doors</td>
</tr>
<tr>
<td></td>
<td>- Detent clutch tripped</td>
<td>- Inspect trimmer for obstructions in chains or tracks, jog trimmer one cycle</td>
</tr>
<tr>
<td></td>
<td>- Gear track or cam worn</td>
<td>- Replace</td>
</tr>
<tr>
<td></td>
<td>- Bucket chain broken</td>
<td>- Replace chain</td>
</tr>
<tr>
<td></td>
<td>- Obstruction in chain</td>
<td>- Remove obstruction and check chain</td>
</tr>
<tr>
<td></td>
<td>- Bucket jammed in track</td>
<td>- Remove obstruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace bucket</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Straighten bent bucket</td>
</tr>
<tr>
<td>Bucket out of alignment with trim tooling</td>
<td>- Gear rack assembly out of time</td>
<td>- Refer to 3.6B trimmer timing</td>
</tr>
<tr>
<td></td>
<td>- Trimmer is out of time</td>
<td>- Refer to 3.6B trimmer timing</td>
</tr>
<tr>
<td></td>
<td>- Bent buckets</td>
<td>- Straighten or replace</td>
</tr>
<tr>
<td></td>
<td>- Stretched chain</td>
<td>- Refer to 3.6A or replace</td>
</tr>
</tbody>
</table>
### System Description – Impact Trimmer

#### SECTION 3

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bucket out of alignment with trim tooling</strong></td>
<td>- Worn sprockets</td>
<td>- Replace</td>
</tr>
<tr>
<td></td>
<td>- Chain out of adjustment</td>
<td>- Refer to 3.6A</td>
</tr>
<tr>
<td></td>
<td>- Plastic caught in drive</td>
<td>- Remove plastic</td>
</tr>
<tr>
<td></td>
<td>- Trimmer cylinder leaking internally</td>
<td>- Rebuild or replace</td>
</tr>
<tr>
<td></td>
<td>- Index solenoid shifting erratically</td>
<td>- Replace or test wiring</td>
</tr>
<tr>
<td></td>
<td>- Index and trim cylinder flow controls out of adjustment</td>
<td>- Adjust flow control valves for smooth operation</td>
</tr>
<tr>
<td><strong>Trimmer indexes but platen does not move</strong></td>
<td>- Insufficient hydraulic pressure</td>
<td>- Check/set compensator</td>
</tr>
<tr>
<td></td>
<td>- Flow divider not operating properly</td>
<td>- Repair or replace</td>
</tr>
<tr>
<td></td>
<td>- Flow controls not adjusted properly</td>
<td>- Adjust flow controls for smooth operation</td>
</tr>
<tr>
<td></td>
<td>- Platen raise solenoid not shifting</td>
<td>- Repair or replace</td>
</tr>
<tr>
<td></td>
<td>- Manual dump valve open</td>
<td>- Close dump valve</td>
</tr>
<tr>
<td><strong>Erratic Indexing</strong></td>
<td>- Counter not working</td>
<td>- Replace</td>
</tr>
<tr>
<td></td>
<td>- Limit switch LS-106 not working properly</td>
<td>- Inspect and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Low accumulator pressure</td>
<td>- Check pressure/recharge</td>
</tr>
<tr>
<td></td>
<td>- Index cylinder relief valve set to low</td>
<td>- Increase pressure</td>
</tr>
<tr>
<td></td>
<td>- Manual dump valve open</td>
<td>- Close dump valve</td>
</tr>
<tr>
<td></td>
<td>- Index flow controls set improperly</td>
<td>- Adjust flow controls for smooth operation</td>
</tr>
<tr>
<td></td>
<td>- Index cylinder seals leaking</td>
<td>- Repair or replace</td>
</tr>
<tr>
<td></td>
<td>- Index gear rack and cam worn</td>
<td>- Replace</td>
</tr>
</tbody>
</table>
### System Description – Impact Trimmer

#### SECTION 3

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Push-off/Blow-off not operating or blowing all the time | - Cam operated air valve input and duration not set properly  
- Blow solenoid not shifting                | - Set timer duration                                   |
| Trimmer shuts off when platen down          | - Bottles jammed in upper nest                          | - Open trimmer door and remove jammed bottles (machine should shut down because of jam up) |
| Push-off stops                              | - Jam-up in pusher station                              | - Defective limit switch. Replace      |
|                                             |                                                         | - Remove bottles and restart trimmer     |
|                                             |                                                         | - Align bottle chute with buckets       |
### TROUBLESHOOTING (10080)

Use the following troubleshooting table. See section 2 on safety before starting trouble shooting work:

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power to trimmer</td>
<td>- Main breaker Off at machine</td>
<td>- Turn On main breaker</td>
</tr>
<tr>
<td></td>
<td>- External circuit Off at machine</td>
<td>- Turn On external circuit</td>
</tr>
<tr>
<td></td>
<td>- Fuse in machine main panel blown</td>
<td>- Replace blown fuse</td>
</tr>
<tr>
<td></td>
<td>- Interconnections between cooling table and machine and cooling table and trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Pushbutton contacts at trimmer not working properly</td>
<td>- Test and replace if faulty</td>
</tr>
<tr>
<td>Power to trimmer but trimmer will not run</td>
<td>- Main trimmer disconnect Off</td>
<td>- Turn trimmer On</td>
</tr>
<tr>
<td></td>
<td>- Interconnections between cooling table and machine and cooling table and trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Reset pilot off</td>
<td>- Check bulb and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Fuse in trimmer electrical panel blown</td>
<td>- Test Pushbutton and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Safety door open</td>
<td>- Replace fuse</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch defective</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch ajar</td>
<td>- Test limit switch and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Motor overload tripped</td>
<td>- Check safety switch alignment and align if needed</td>
</tr>
<tr>
<td></td>
<td>- Motor starters tripped</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Motor burned out</td>
<td>- Reset motor overload</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Brake coil not energized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Repair or replace motor</td>
</tr>
</tbody>
</table>
## 10080 (Impact)

### SECTION 3

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power to trimmer but trimmer will not run</strong></td>
<td>- Brake on or stuck in</td>
<td>- Check brake solenoid or coil and replace if needed</td>
</tr>
<tr>
<td></td>
<td>- Brake coil not energized</td>
<td>- Replace or repair coil check for loose wiring</td>
</tr>
<tr>
<td><strong>Buckets Don't move</strong></td>
<td>- Power off</td>
<td>- Turn On power</td>
</tr>
<tr>
<td></td>
<td>- Safety doors open</td>
<td>- Close safety doors</td>
</tr>
<tr>
<td></td>
<td>- Detent clutch tripped</td>
<td>- Inspect trimmer for obstructions in chains or tracks, jog trimmer one cycle</td>
</tr>
<tr>
<td></td>
<td>- Drive not motor running</td>
<td>- Check motor starter</td>
</tr>
<tr>
<td></td>
<td>- Drive motor overload tripped</td>
<td>- Reset motor overload</td>
</tr>
<tr>
<td></td>
<td>- Drive motor starters tripped</td>
<td>- Reset motor starter</td>
</tr>
<tr>
<td></td>
<td>- Drive belt broken</td>
<td>- Replace drive belt</td>
</tr>
<tr>
<td></td>
<td>- Index chain broken</td>
<td>- Replace chain</td>
</tr>
<tr>
<td></td>
<td>- Bucket chain broken</td>
<td>- Remove obstruction</td>
</tr>
<tr>
<td></td>
<td>- Obstruction in chain</td>
<td>- Drive belt broken, replace</td>
</tr>
<tr>
<td></td>
<td>- Gearbox output shaft and sprocket do not move</td>
<td>- Gearbox frozen, repair or replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Gear box gears jammed, repair</td>
</tr>
</tbody>
</table>
### System Description – Impact Trimmer

#### SECTION 3

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buckets don’t move</strong></td>
<td>- Bucket jammed in track</td>
<td>- Remove obstruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace bucket</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Straighten bent bucket</td>
</tr>
<tr>
<td><strong>Trimmer is out of time</strong></td>
<td>- Bent buckets</td>
<td>- Straighten bent bucket</td>
</tr>
<tr>
<td></td>
<td>- Detent clutch not operating properly</td>
<td>- Inspect trimmer for obstructions in chains</td>
</tr>
<tr>
<td></td>
<td>- Stretched chain</td>
<td>or tracks, jog trimmer one cycle</td>
</tr>
<tr>
<td></td>
<td>- Worn sprockets</td>
<td>- Refer to 3.6A</td>
</tr>
<tr>
<td></td>
<td>- Chain out of adjustment</td>
<td>- Refer to 3.6A or figure 3-4B</td>
</tr>
<tr>
<td></td>
<td>- Idle sprocket tension incorrect</td>
<td>- Refer to 3.6A Note, or 3.6B retiming</td>
</tr>
<tr>
<td></td>
<td>- Index fine adjustment loose or out of adjustment</td>
<td>10039-42-80 trimmers</td>
</tr>
<tr>
<td></td>
<td>- Plastic caught in drive chain</td>
<td>- Remove plastic and inspect, realign modules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if needed, Refer to 3.6A-3.6B</td>
</tr>
<tr>
<td><strong>Trimmer indexes but platen does not move</strong></td>
<td>- Drive chain broken</td>
<td>- Replace chain</td>
</tr>
<tr>
<td></td>
<td>- Platen key and sprocket damaged</td>
<td>- Inspect sprocket and key, replace if damaged</td>
</tr>
<tr>
<td></td>
<td>- Gearbox output shaft and sprocket not moving</td>
<td>- Drive belt broken, replace</td>
</tr>
<tr>
<td></td>
<td>- Auto guard torque limiter tripped</td>
<td>- Gearbox frozen, repair or replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Gearbox gears jammed, repair or replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Jog trimmer one complete cycle to re-engage</td>
</tr>
<tr>
<td>Symptom/Problem</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Erratic indexing</td>
<td>- Counter not working</td>
<td>- Test and replace</td>
</tr>
<tr>
<td></td>
<td>- Limit switch LS-101 not working properly</td>
<td>- Inspect and replace</td>
</tr>
<tr>
<td>Push-off/Blow-off not operating or blowing all the time</td>
<td>- Cam operated air valve input and duration not set properly</td>
<td>- Set timer duration</td>
</tr>
<tr>
<td></td>
<td>- Blow solenoid not shifting</td>
<td>- Replace contact if burned or sticking</td>
</tr>
<tr>
<td></td>
<td><strong>MACO/SLC</strong></td>
<td>- Test and replace</td>
</tr>
<tr>
<td></td>
<td>- Blow/Eject #1, #2 not enabled</td>
<td><strong>MACO/SLC</strong></td>
</tr>
<tr>
<td></td>
<td>- SLC 100 jumper to S103 or S104 not connected or loose</td>
<td>- Push enable on TSA on enable screen</td>
</tr>
<tr>
<td></td>
<td>- Check to see if enable bit is set properly</td>
<td>- connect or tighten contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Set enable bits</td>
</tr>
<tr>
<td>Trimmer shuts off when platen down</td>
<td>- Bottles jammed in upper nest</td>
<td>- Open trimmer doors and remove jammed bottles (machine should shut down because of jam up)</td>
</tr>
<tr>
<td>Push-off stops</td>
<td>- Jam-up in pusher station</td>
<td>- Defective limit switch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove bottles and restart trimmer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Align bottle chute with buckets</td>
</tr>
</tbody>
</table>
SECTION 4 SPINOFF TRIMMERS INCLUDING POSITIVE BUCKET SHUTTLE AND CABLE CONVEYOR

4.1 INSTALLATION AND SETUP
The location of the equipment has been indicated in the machine layout supplied by Johnson Controls.

The trimmer is placed at near the blowmold machine in accordance with the layout. The location depends on the method for removal of the containers from the blowmold machine and delivery to the trimmer.

4.1A LEVELING THE TRIMMER
The trimmer is leveled to the transfer device. (See Figure 4-2). Level the trimmer by placing the level on the trimmer frame lengthwise and adjusting the legs front to back. Then place the level crosswise on top of the trimmer frame and adjust the trimmer side to side. Recheck and adjust the trimmer until it is level. Tighten locking nuts on adjustable legs.

4.1B ELECTRICAL CONNECTION
The electrical power for the trimmers is received from the blowmold electrical cabinet. The three-phase power is run into the trimmer electrical cabinet and connected to the trimmer disconnect. (See electrical schematic for connection of power feed.)

4.1C PNEUMATIC CONNECTION
The pneumatic supply INPUT connection is made at the inlet side of the trimmer pressure regulator mounted on the side of the trimmer. (See the pneumatic schematic for connecting input.)

4.2 SEQUENCE OF OPERATION
The Spinoff type trimmer is used to remove the dome and possibly the tail from the non-prefinished containers after they leave the blowmold machine.

This sequence of operation describes one complete cycle of a molded container being transported from the blowmold machine through the trimmer.

1. The molded containers are removed from the blowmold machine and transported to the trimmer in an upright position by the Positive Bucket Shuttle or Cable Conveyor.

2. The containers are directed into the trimmer where the dome of the container is guided between two drive belts. The flash on the bottom of the container runs into a groove.

3. As the containers move through the trimmer the bottom flash is knocked off by a detabber bar. Then the bottom flash drops into the scrap handling system and moves to the grinder.
Figure 4-1: Operating Controls
4. The top flash of the container is driven against a stationary blade. As the container
contacts the blade it is spun by the action of the drive belt causing the top flash to be
trimmed away. After the flash is removed, the containers drop from the trimmer. Then
the top flash (DOME) drops into the scrap handling system and moves to the grinder.

4.3  OPERATION AND MAINTENANCE SAFETY
The following subsections discuss the operating and maintenance safety for the Impact Trim-
mers.

4.3A  ! SHARP KNIFE: BEWARE OF LONG SHARP EDGE USED FOR CUTTING
DOME FROM BOTTLES. THE KNIFE MAY ALSO BE "HOT".

4.3B  PINCH POINTS
Keep hands and hair free of moving parts and pinch points. The transfer, chains, belts, and
sprockets are all potential pinch points. Use extreme caution when working in or around these
areas.

4.3C  GUARDING SYSTEM
Ensure proper operation of all safety doors and interlocks. Do not defeat their purpose by
attempting to override them. Keep all fixed guards secured in place. Maintenance and operat-
ing personnel must always check for proper operation of these devices prior to operating the
machine. Under no circumstances should they ever be removed, bypassed, or modified.

To check the trimmer safety doors at the beginning of each shift the operator should close all of
the safety doors around the trimmer with the power "On" (trimmer reset lights "On" and trim-
mer in operation). Open the first door and check to see if the Power "On" pilot light on the
button goes off and the trimmer stops. Then close the door and actuate the Power "On". The
power "On" pilot light should turn on. Repeat this procedure for the all trimmer safety doors. If
any door is not working properly, first check the door's limit switch and replace it if it does not
de-energize the control circuit when the door is open. If there is still no warning light, trace the
control circuit to see if it has been shorted or bypassed with a jump wire at the control panel.
Also check the safety interlock switch to see if it has been by-passed or defeated. The guarding
system must be maintained and checked on a daily basis.

4.3D  ELECTRICAL
Return components to home position and bleed off all pneumatic pressure to prevent any unex-
pected movement. Lockout and tagout all electrical power prior to performing any maintenance
on the trimmers. See Figure 3-2.

Read and follow the information on the equipment signs. Do not remove or paint over them,
and replace when unreadable.

Use extreme care when working around limit switches. If electrical power is not locked out, any
inadvertent movement of a limit switch may cause unexpected component movement.
Adjustable feet for leveling trimmer

Figure 4-2: Leveling the Trimmer
4.3E OBSTRUCTION IN TRIMMER
If there is an obstruction in the trimmer, release the bottles by operating "jam-up" open/close controls. Should this procedure not clear the jam-up, open the interlocked safety doors, make sure the trimmer and detabber stop, and the power "On" light goes off. Then use a plastic or wood stick, or other safe tool to clear the jam-up.

4.4 OPERATING CONTROLS AND ELECTRICAL
The operator panel is located on the front of the unit (see Figure 4-1). The following are the operating controls for the Spinoff trimmers:

TRIMMER DISCONNECT
This disconnect isolates the electrical power to the trimmer.

EXTERNAL CIRCUIT STOP pushbutton
Immediately stops the trimmer in an emergency condition by removing the control power to the trimmer.

CONVEYOR START/STOP (optional)
Remote two-position switch (push-to-off, pull-to-on) starts the downstream conveyor if supplied by customer.

SPINOFF DETABBER On/Off
A two-position switch (push-to-off, pull-to-on), starts and stops trimmer.

SHUTTLE On/Off
A two-position switch (push-to-off, pull-to-on), starts and stops transfer that feeds trimmer containers.

HOT KNIFE Rheostat (optional)
This device supplies power to heat a cutting knife to separate the top flash from the container.

JAM-UP Open/Close
A two-position switch, open/closed. Open position clears containers from the trimmer, closed position allows containers to be trimmed and conveyed to the customer's holding area.
4.5 MECHANICAL MAINTENANCE
The mechanical maintenance for the trimmer consists of the drive belt adjustment, detabber belt adjustment and drive chain adjustment.

LOCK OUT ALL POWER AND TEST CONTROLS FOR NO MOTION PRIOR TO ADJUSTING COMPONENTS ON THE TRIMMER.

OVER-TENSION OR UNDERTENSION ON THE CHAINS AND BELTS WILL PRODUCE EXCESSIVE WEAR ON BUSHINGS AND BEARINGS CAUSING A PREMATURE FAILURE OF DRIVE COMPONENTS.

4.5A CHAIN, BELT AND GUIDE ADJUSTMENTS

Drive Belt Adjustment (see Figure 4-3A)
1. Loosen the (4) bolts on the drive belt motor.
2. Move the motor forward or backward with adjusting bolt to adjust belt deflection to 5/16 inch.
3. Tighten the (4) bolts on the drive motor.

Stationary Belt Adjustment (see Figure 4-3B)
1. Loosen the (4) bolts on the left front bearing block.
2. Move the bearing block side to side to adjust belt deflection to 5/16 inch.
3. Tighten the four bolts on the front bearing block.

Detabber Belt Adjustment (see Figure 4-3C)
1. Loosen the (4) bolts on the motor mount bracket.
2. Rotate adjusting screw to adjust the belt tension to 5/16 inch.
3. Tighten the (4) bolts for the mount bracket.

Drive Chain Adjustment (see Figure 4-3D)
1. Loosen the bolts on the drive chain idler sprocket.
2. Move the drive chain idler sprocket to adjust the chain to 1/4-inch deflection.
3. Tighten the (4) drive chain sprocket bolts.

Drive Belt Clearance Adjustment (see Figure 4-3E)
To adjust the belt clearance against the dome:
1. Place a container with dome between the drive and stationary belts.
2. Rotate the adjusting screw to adjust the table jackscrew until the belts grip the dome of the container and transfer it to the blade for trimming.
3. Lock down the jackscrew.
Figure 4-3A: Drive Belt Adjustment

Figure 4-3B: Stationary Belt Adjustment
Figure 4-3C: Detabber Belt Adjustment

Figure 4-3D: Drive Chain Adjustment
Center bolt width adjustment for dome clearance with lock down ring

Adjusts belt height to blade table height. Adjust with 4 lock downs in slotted holes

Figure 4-3E: Drive Belt Clearance Adjustment
Figure 4-4A: Blade Angle Adjustment

Blade angle adjustment screws 2 of 3 visible

Blade adjustment Up/down

(also refer to Figure 4-3E.)

(Can also be used as height adjustment)

Figure 4-4B: Blade Cutting Height Adjustment
4.5B  KNIFE ADJUSTMENT AND REPLACEMENT (SEE FIGURE 4-4.)

Knife Replacement (see FIGURE 4-4C)

⚠️ The stationary knife is extremely sharp and may be hot. Use proper personal protective equipment when handling.

⚠️ Be aware of potential pinch points. Keep clear of moving components.

❓ 1. Lock out all electrical and pneumatic power to the trimmer. Test controls for no motion
2. Remove (6) socket head cap screws from the knife keeper.
3. Remove the knife and the keeper together.
4. Reverse the procedure to install the knife and keeper.
5. Ensure the area is safe. Remove the safety lock and turn on the electrical power.

⚠️ Be aware of potential pinch points. Keep clear of moving components.

Knife Cutting Angle Adjustment (see Figure 4-4A)

❓ 1. Turn off and lock out disconnect switch to electrical and pneumatic power. If (optional) hot knife is installed, allow it to cool sufficiently before handling
2. Loosen the (3) bolts located in the slotted holes at the top of the knife.
3. Place the base of the knife so the entry position to the container is at 0 degrees.
4. Now swivel the knife out to an increasing angle of 4 to 5 degrees.
5. Tighten the (3) bolts, turn on electrical and pneumatic power and run an untrimmed container through the trimmer.
6. Ensure the area is safe. Remove the safety lock and turn on the electrical power.
Always turn off and lock out electrical and pneumatic power and test controls for no motion when making any knife adjustment.

Knife Height Adjustment (see Figure 4-4B)

1. Turn off and lock out electrical and pneumatic power.
2. Place an untrimmed container against the stationary knife, between the dome and the top of the container finish.
3. Loosen the (4) socket head screws located on the knife holder.
4. Lightly position the knife in the trim point at the top of the container finish.
5. Tighten the (4) socket-head screws located on the knife holder.
6. Remove lock and turn on electrical and pneumatic power.
7. Adjust the angle of the stationary knife until the container dome is properly trimmed.
8. Turn off power and tighten the (3) bolts located in the slotted holes at the top of the knife.

4.5C BOTTLE GUIDES ALIGNMENT
The bottle guide consists of two metal rods that guide the dome flash to the customer's scrap handling device. To adjust the bottle guides to fit a container, locate and loosen the two socket head cap screws and the single pointed set screw until the bottle guides move freely. Then insert an untrimmed bottle into the exit end of the trimmer and move the tooling in or out as necessary to support the dome flash as it travels to the scrap chute. Retighten the socket head cap screws and the set screw after a clearance fit is made.

4.6 PNEUMATIC MAINTENANCE
The pneumatic maintenance for the trimmer consists of the Automatic Clearing Device System, which is used to unjam the spin-off trimmer. When a jam-up is detected the knife holder actuator moves the knife holder, opening the space where the containers move. This allows the container to fall through to a customer's scrap handling device. Maintenance on the knife holder system consists of removal and replacement of components. The system consists of a regulator, solenoid valve, and an actuator. The speed of the actuator can be controlled by two flow controls. There is a flow control located at each end of the actuator.

Prior to performing maintenance on the various pneumatic systems, consult the pneumatic schematic drawings.

4.7 ELECTRICAL MAINTENANCE

4.7A TRIMMER DRIVE MOTOR CIRCUIT
The trimmer drive motor circuit receives three-phase power from the blowmold machine. The power is provided to the trimmer disconnect located at the trimmer electrical enclosure. After closing the disconnect contacts, power flows through fuse 500FU to 101M contacts, energizing the 101M trimmer drive motor, 101M spinoff detabber drive, and the Airveyor motor 104M.
Figure 4-4C: Removal of the Trimmer Blade
4.7B CONTROL CIRCUIT
Power flows into the detabber electrical enclosure to a single set of detabber disconnect contacts. Closing the contacts provides a path for power to the safety door limit switches and one EMERGENCY STOP pushbutton. From this main leg power flows to the START/STOP pushbutton switch that enables the 101M control coil. Refer to the parts book of your specified trimmer for component location.

**NOTE:** Contact the manufacturer for the control schematics applicable to your particular trimmer.

4.8 LUBRICATION REQUIREMENTS

- **Lubrication Points (Zerk) — Use EP2 or equivalent - weekly**
  - 4 pillow blocks on the chain drive assembly
  - 2 pillow blocks on the belt assembly
  - 2 pillow blocks on the detabber assembly

- **Drive Gearbox**—Locate and remove the side fill plug. Fill with 90W lube oil until the oil starts to overflow from the side fill hole. Reinstall the side fill plug. (see Figure 4-5) Drive gearbox fluid should be changed every 6000 hrs or once a year.

⚠️ On a daily basis the operator should inspect the trimming unit to ensure that all components and assemblies are in good working order. Check for fluid leaks, sprocket and tooling misalignment, loose chains or belts, and worn parts.
Figure 4-5: Lube Guide
## 4.9 TROUBLESHOOTING SPIN-OFF TRIMMER

Use the following troubleshooting table. See section 2 on safety before starting trouble shooting work:

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power to trimmer</td>
<td>- Main breaker Off at machine</td>
<td>- Turn On breaker</td>
</tr>
<tr>
<td></td>
<td>- External circuit Off at machine</td>
<td>- Turn on External circuit</td>
</tr>
<tr>
<td></td>
<td>- Fuse in machine main panel blown</td>
<td>- Replace fuse</td>
</tr>
<tr>
<td>Power to trimmer but trimmer belts do not rotate</td>
<td>- Interconnections between shuttle and machine trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Pushbutton contacts at trimmer not working properly</td>
<td>- Test and replace if needed</td>
</tr>
<tr>
<td>Transfer motor doesn't operate</td>
<td>- Main trimmer disconnect Off</td>
<td>- Turn On main Disconnect</td>
</tr>
<tr>
<td></td>
<td>- DC motor controller fuse blown</td>
<td>- Replace fuse</td>
</tr>
<tr>
<td></td>
<td>- Interconnections between shuttle and machine trimmer disconnected.</td>
<td>- Connect interconnections between units</td>
</tr>
<tr>
<td></td>
<td>- Safety door open</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch defective</td>
<td>- Test and replace</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch ajar</td>
<td>- Check safety switch alignment and align if needed</td>
</tr>
<tr>
<td>Detabber motor is not running</td>
<td>- Jam in trimmer system</td>
<td>- Remove plastic caught in transfer</td>
</tr>
<tr>
<td></td>
<td>- Trimmer belts binding</td>
<td>- Adjust belts (refer to 4.4A)</td>
</tr>
<tr>
<td></td>
<td>- Motor overload tripped</td>
<td>- Reset motor overload</td>
</tr>
<tr>
<td></td>
<td>- Chain tension set improperly</td>
<td>- Adjustst (refer to 4.4A)</td>
</tr>
<tr>
<td></td>
<td>- Drive motor burned out</td>
<td>- Replace motor</td>
</tr>
<tr>
<td></td>
<td>- Main trimmer disconnect Off</td>
<td>- Turn On disconnect</td>
</tr>
<tr>
<td></td>
<td>- Detabber motor fuse blown</td>
<td>- Replace fuse</td>
</tr>
<tr>
<td></td>
<td>- Safety door open</td>
<td>- Close safety doors</td>
</tr>
</tbody>
</table>
## System Description – Spinoff Trimmer

### Section 4

<table>
<thead>
<tr>
<th>Symptom/Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detabber motor is not running contd.</strong></td>
<td>- Door limit switch defective</td>
<td>- Test and replace</td>
</tr>
<tr>
<td></td>
<td>- Door limit switch ajar</td>
<td>- Check safety switch alignment and align if needed</td>
</tr>
<tr>
<td></td>
<td>- Jam in detabber box system</td>
<td>- Close safety door</td>
</tr>
<tr>
<td></td>
<td>- Detabber belt binding</td>
<td>- Remove plastic caught in detabber box</td>
</tr>
<tr>
<td></td>
<td>- Detabber belt broken or out of adjustment</td>
<td>- Adjust (refer to 4.4A)</td>
</tr>
<tr>
<td></td>
<td>- Motor overload tripped</td>
<td>- Replace or (refer to 4.4A)</td>
</tr>
<tr>
<td></td>
<td>- Motor starters tripped</td>
<td>- Reset motor overload</td>
</tr>
<tr>
<td></td>
<td>- Drive motor burned out</td>
<td>- Reset motor starter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace motor</td>
</tr>
<tr>
<td><strong>Anti-jam detector not working properly</strong></td>
<td>- Air supply not operating</td>
<td>- Check solenoid or replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Electric eye not set properly</td>
<td>- Check regulator or replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Air cylinder not operating</td>
<td>- Test and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Bronze bushings binding</td>
<td>- Test and replace if faulty</td>
</tr>
<tr>
<td></td>
<td>- Dome guide assembly bar jammed</td>
<td>- Lubricate bushing with oil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check solenoid and cylinder if faulty replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove plastic caught in guide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace dull knife blade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace broken knife blade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Align Knife blade (refer to 4.4B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Align tooling guides</td>
</tr>
<tr>
<td>Symptom/Problem</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Detabber jams up excessively</td>
<td>Detabber motor rotation not correct</td>
<td>Reverse motor polarity wiring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remove plastic caught or jammed in detabber box</td>
</tr>
<tr>
<td>Scrap handling system at detabber inoperative</td>
<td>Flash jammed in chute</td>
<td>Clear chute of flash</td>
</tr>
<tr>
<td>Bottles don’t transfer</td>
<td>Belt not aligned properly</td>
<td>Adjust (refer to 4.4B)</td>
</tr>
<tr>
<td></td>
<td>Belts worn</td>
<td>Refer to guide adjustment 4.4C</td>
</tr>
<tr>
<td></td>
<td>Anti-jam device open</td>
<td>Replace belt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check solenoid if faulty replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check manual selector switch</td>
</tr>
<tr>
<td></td>
<td>Pulleys not rotating</td>
<td>Adjust flow control valves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace broken key</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tighten set screw</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Align pulley to key and keyway</td>
</tr>
</tbody>
</table>