OPERATOR'S MANUAL

PALOMA D3 ROBOT

WELCOME

Welcome to the Paloma D3 Robot. The purpose of this machine is to make and fill packages with the small pouches that are created by the Rovema Bagger. The Paloma Robot gathers the correct number of pouches for each package, and places them in the carton to be sealed by the Kliklok Carton Closer.

The Paloma runs very quickly and processes a lot of product every shift. It is important to keep it clean, so that it will continue to run smoothly.

This manual will introduce you to the machine, important safety features, and your daily responsibilities. It also contains a Troubleshooting Guide to help you keep the machine running smoothly during your shift.

CONTENTS

SAFETY FEATURES

The Paloma D-3 Robot is equipped with several safety features to keep you and your coworkers safe. You will learn about them in this section.
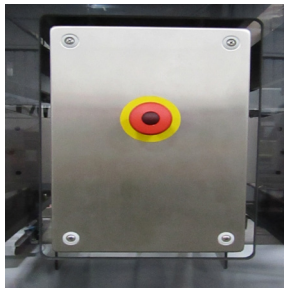
E-STOP OR EMERGENCY STOP

There are Emergency Stop buttons located all around the Paloma. There are three on the front, two on the back, and one on every conveyor belt.

There are also E-Stop buttons and E-Stop chords inside the Paloma. You can push these buttons or pull these chords to stop the machine immediately. Do not hesitate to push or pull an E-Stop IF a person's body or life is at risk.

Do NOT push these buttons FIRST for routine maintenance or repairs. Pushing the E-Stop interrupts the work cycle, and will likely damage the product. Pushing the E-Stop is like slamming on your brakes while driving instead of slowing down gradually. It is important in an emergency, but not ideal for day-to-day driving.

MAIN SWITCH

The main switch should ALWAYS be turned off during maintenance, cleaning, and repair work by twisting the switch to the "O" for OFF. For additional safety, the main swich can be secured in the OFF position by using a padlock.
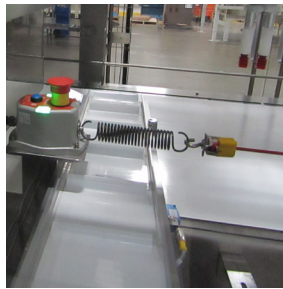
| Emergency Stop | E-Stop with Cable | E-Stop on Control Panel | Main Switch |

SAFETY INTERLOCKS

The Solenoid Safety Interlocks will NOT allow the doors to be opened while the machine is running. In addition, the machine will not run if any of the interlocks are disconnected (i.e. doors are open).

SAFETY LABELS

There are many different warning labels on the Paloma. The labels are there to protect you, the Operator. It is important that you pay attention to these warnings so that you know how to safely operate the machine.

 Danger! Read specific warnings.

 Arc flash and shock hazard!

 Crush risk! Keep hands clear when on.

 High voltage! Risk of electric shock.
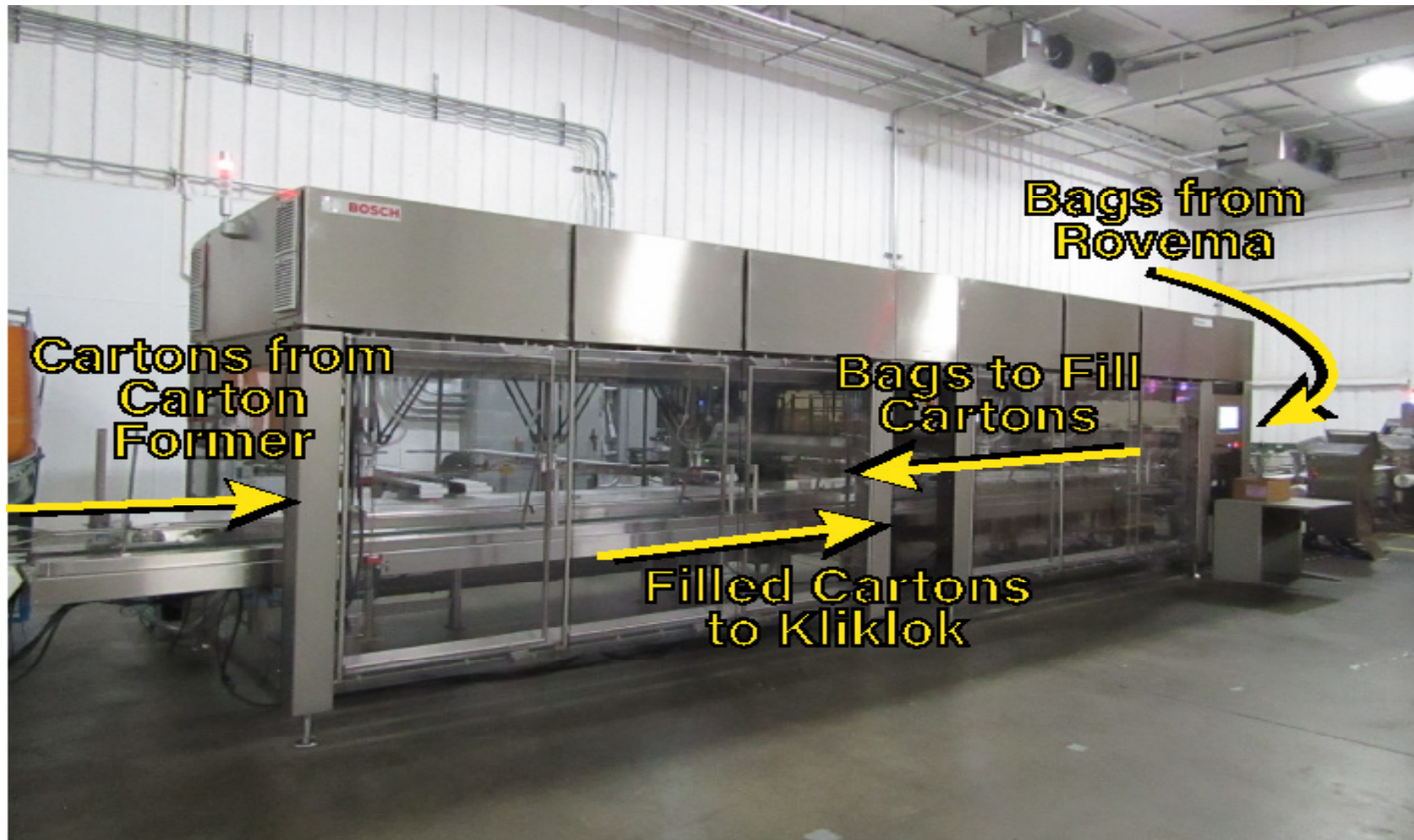
 Hot surface! Burn risk.

LIGHT TOWER

The Light Tower tells the Operator when the machine needs some sort of action and, when necessary, will alert you that the Paloma has been shut down for safety reasons. Learn what the color codes mean so that you understand to what the machine is trying to alert you.

Light		Meaning
Red Light	🟥	STEADY: Normal stop FLASHING: Emergency Stop
Orange Light	🟧	FLASHING: Auto Demand Eye blocked, OR Down-stream stopped, OR glue not ready
Green Light	🟩	STEADY: Running FLASHING: Homing or stopping
Blue Light	🟦	FLASHING: Low magazine, OR low glue level
White Light	⬜	No connection
Alarm Horn	⬜	Machine fault, OR low materials

INTRODUCTION TO THE MACHINE

The Paloma uses the small bags from the Rovema to fill cartons from the Carton Former. The bags travel on a conveyor belt from the Rovema to the far end of the Paloma. Once they enter the Rovema, cameras tell the robots where the bags are and which direction they are facing. The robots then pick up the bags and fill the cartons that have been brought in from the Carton Former on the other side of the Paloma.

The filled cartons move to the right on a lower conveyor belt within the Paloma. After leaving the machine, they will get weighed before entering the Kliklok to have the cartons sealed..
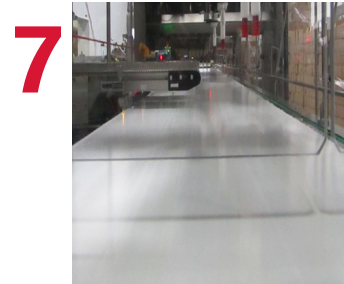
5 Back Up Conveyor Belts

6 E-Stop Chord

7 Infeed Belt

8 Suction Cups

9 Outfeed Belt & Guides
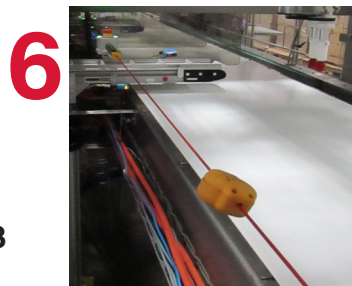
10 Robot

5 BACK UP CONVEYOR BELTS

If there is extra product on the line, the Paloma will place it on the Back Up Conveyor Belts until it is needed.
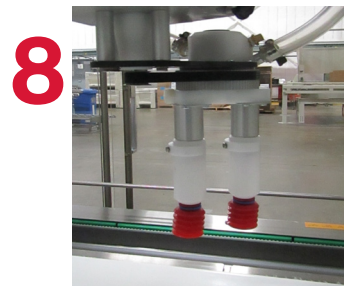
7 INFEED BELT

The Infeed Belt brings bags in from the Rovema. The Robot picks them up and places them in the cartons in the Outfeed Belt according to the recipe.

6 E-STOP CHORD

Two E-Stop Chords run the length of the Paloma and attach to E-Stop Buttons. Either one will cause the machine to stop if someone's life or limb is in danger.

8 SUCTION CUPS

There are two Suction Cups on each Robot. The Suction Cups use air pressure to grab bags and place them in the cartons.
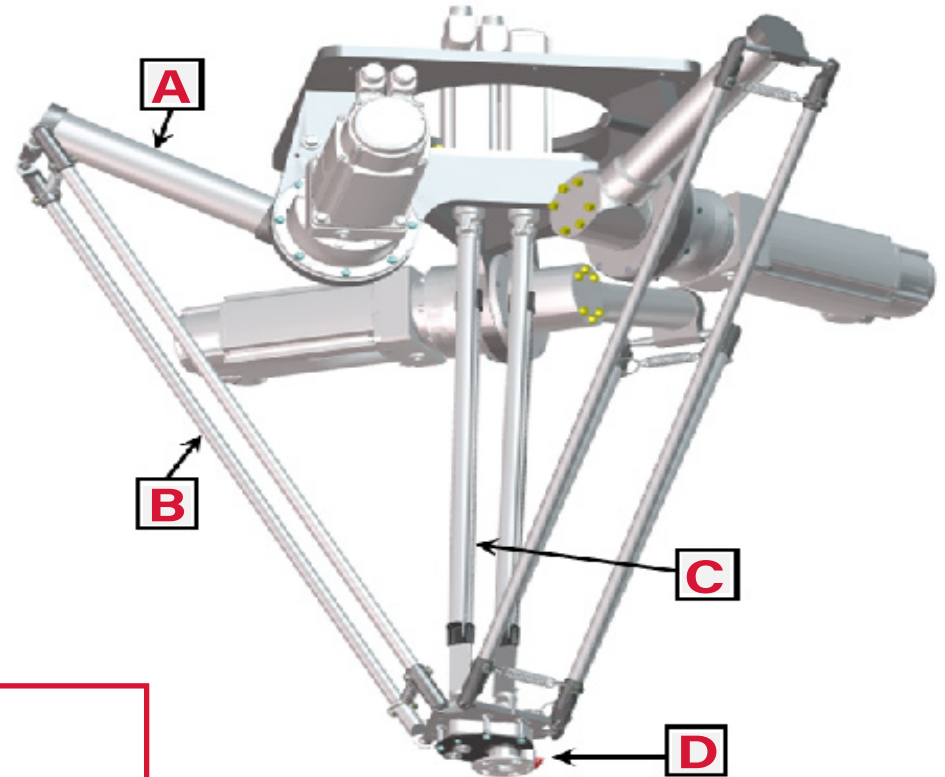
9 OUTFEED BELT & GUIDES

The Outfeed Belt and Guides bring in cartons from the Carton Former to be filled by the Rovema. The cartons enter from the opposite direction of the bags, get filled in the middle, and leave through the other end to the Kliklok.

10 ROBOTS

There are four Robots in the Paloma, and they are each made up of four parts: Arm, Fore Arm, Telescopic Shaft, and End-Effector Mounting Plate. These parts work together to quickly grab gabs and place them in cartons.

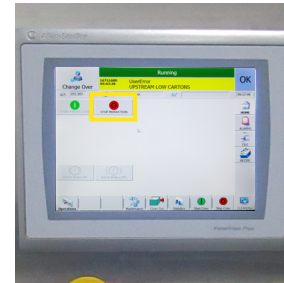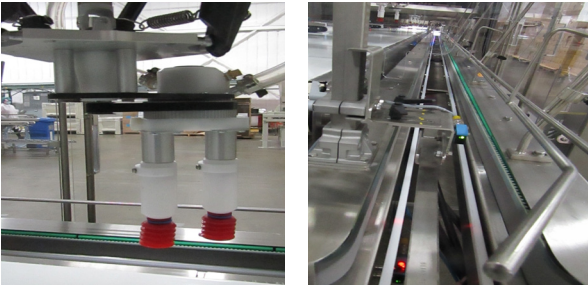|	
A	Arm
B	Fore Arm
C	Telescopic Shaft
D	End-Effector Mounting Plate

QUICK START GUIDE

1

TURN ON THE MAIN POWER (IF OFF)

2

MAKE SURE THE TOUCHSCREEN SAYS "STOP PRODUCTION"

3

CLEAN THE SUCTION CUPS, INFEED BELT, OUTFEED BELT AND GUIDES, AND CONVEYOR BELTS

4

START BY SELECTING "START PRODUCTION" ON THE TOUCH-SCREEN

BEST PRACTICES

Great Operators pay attention to their machine and adjust when something does not seem right. No matter how long you have worked the Paloma, pay close attention to the machine, the product, and the area around the machine. If you see changes, try to address them before they become major problems. Use the Trouble-Shooting Guide in this manual to learn the ways you can address problems before calling Maintenance. In this section you will find daily activities and best practices that will help you to keep this important machine working.

CLEAN THE MACHINE

Inspect the conveyor belts for dirt and stickiness throughout your shift. You can clean the belts with a wet rag.

LOOK FOR WEAR

Watch the belts, rollers, and Suction Cups througout your shift. If you notice wear or damage, or if you notice that the robot is not picking up and moving the bags as it should, check the Suction Cups for damage.

STOP SAFELY

There are many reasons why you may need to stop the machine for a short time. Unless it is an emergency where someone's body or life is at risk, always press the red "Stop Production" button on the Touchscreen. Pushing this button will slow the machine to a stop gradually and avoid damaging the product or the machine.

As stated in the Safety section, do not hesitate to push the E-Stop IF a person's body or life is at risk. However, do not push this button first for routine maintenance or repairs because it causes the machine to stop immediately, which will likely damage product and change the machine's delicate settings.

WATCH FOR JAMS

The Paloma D3 Robot is in between two very high-producing machines - the Rovema and the Carton Former. Jams may happen on the conveyor belt between the Carton Former and the Paloma. The conveyor belts that are behind the Rovema (and run perpendicular to the machine) collect extra bags and should drop them back onto the conveyor when bag levels are lower than carton levels.

TURNING ON THE MACHINE

If the Paloma has been shut off, you will need to take the following steps to turn it on for your shift:
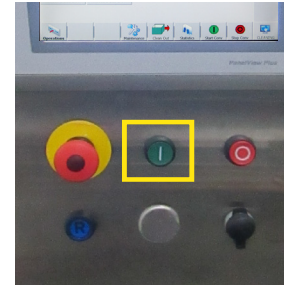
1

Turn on the main power by turning the knob into the "ON" position.

The main power knob is located on the back of the machine in the middle.

2

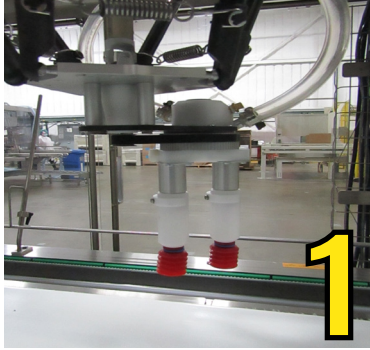Press the green "ON" button the Control Panel (underneath the Touch-screen).

3

Press "Start Production" on the Touch-screen.

START OF SHIFT PROCESSES

Once the machine has been turned on, complete the following at the beginning of your shift.

CLEAN

Press the red "Stop Production" button on the Touchscreen. Then open the doors to clean the machine.

Clean the following parts with a wet rag at the start of every shift: 1) the red suction cups, 2) under the rail, 3) the sticky edges and troughs, 4) the orange rollers on the Conveyor Belt, 5) the Infeed Belt, and 6) the doors.
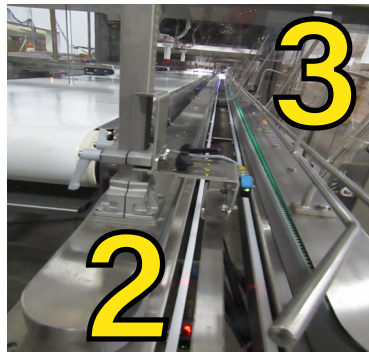

DOUBLE-CHECK NUMBERS

You will receive Packaging Program sheets every day. These sheets will tell you what recipes will run and when. Recipes are all pre-loaded. You will not need to enter a new recipe, but only select the correct one.

Note: all of the Control Panels on the Snack Line are connected. If the Rovema Operator has already selected the recipe for that day, it will update on your Touchscreen. However, it is very important to double-check to make sure that what is on your screen matches what is on the information sheets for that day.
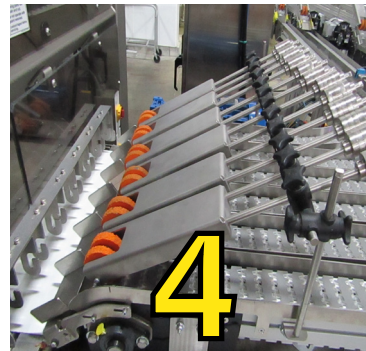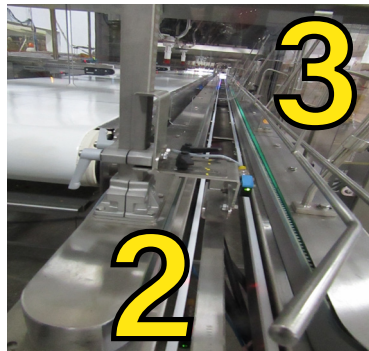
END OF SHIFT PROCESSES

CLEAN
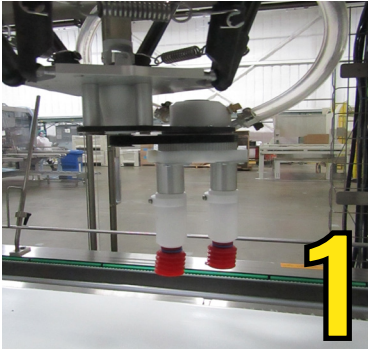
Press the red "Stop Production" button on the Touchscreen. Then open the doors to clean the machine.

Clean the following parts with a damp rag at the start of every shift: 1) the red suction cups, 2) under the rail, 3) the sticky edges and troughs, 4) the orange rollers on the Conveyor Belt, 5) the Conveyor Belt, and 6) the doors.

CIL STANDARDS SHEET

Bags and cartons must enter the Paloma D3 Robot in a specific way in order for the Robot to sense and correctly place them. Very small changes in how the bags come off of the Conveyor Belt can cause the Paloma to grab too many or too few bags, or be unable to pick bags up entirely. Your job as the Paloma Operator is to keep this machine clean and moving smoothly.
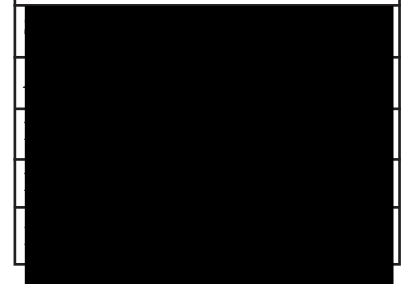
This section includes the Cleaning, Inspection, and Lubrication (CIL) Standards, which you will complete during every shift. These instructions are simple, but extremely important to keeping the Paloma running efficently throughout your shift.
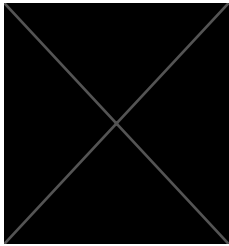
PALOMA D3 ROBOT

CLEANING, INSPECTION & LUBRICATION STANDARDS (CIL)

NAME: _____ DATE: _____ SHIFT: _____

CONVEYOR BELTS TO PALOMA

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7
INSPECT							
Production Ready							
Are the belts clean and in good condition?	😃 🙂 🙁	😃 🙂 🙁	😃 🙂 🙁	😃 🙂 🙁	😃 🙂 🙁	😃 🙂 🙁	😃 🙂 🙁
Action Taken (Check box if appropriate)							
Wiped down with a wet rag	☐	☐	☐	☐	☐	☐	☐
Called Maintenance	☐	☐	☐	☐	☐	☐	☐

INFEED VALVE TRANSITION

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7
CLEAN							
Action Taken (Check box if appropriate)							
Wiped down with a wet rag	☐	☐	☐	☐	☐	☐	☐
Called Maintenance	☐	☐	☐	☐	☐	☐	☐

BELT TRANSITIONS FOR OUTFEED
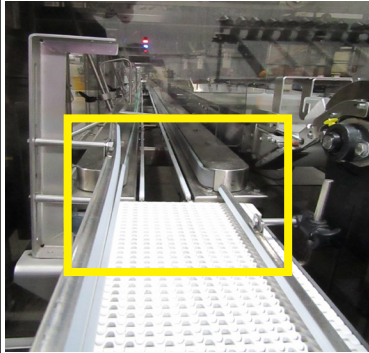
INSPECT

Alignment

Is the conveyor lined up and running smoothly with the Outfeed Product Belt?

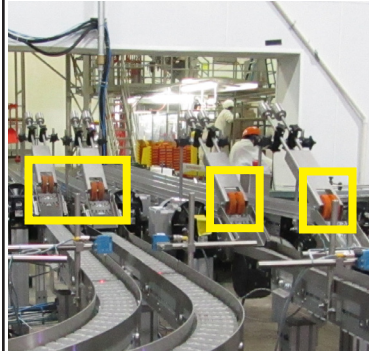*Action Taken* (Check box if appropriate)

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7
	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁
Repositioned belt position	☐	☐	☐	☐	☐	☐	☐
Called Maintenance	☐	☐	☐	☐	☐	☐	☐

ROLLERS:BELT TRANSITION

INSPECT

Production Ready

Are the rollers clean and in good condition?

Action Taken (Check box if appropriate)

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7
	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁
Cleaned with a wet rag	☐	☐	☐	☐	☐	☐	☐
Called Maintenance	☐	☐	☐	☐	☐	☐	☐

ROLLERS:INFEED PRODUCT BELT

INSPECT

Production Ready

Are the rollers clean and in good condition?

Action Taken (Check box if appropriate)

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7
	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁	🙂 😐 🙁
Cleaned with a wet rag	☐	☐	☐	☐	☐	☐	☐
Called Maintenance	☐	☐	☐	☐	☐	☐	☐

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PKG 24.86

TROUBLESHOOTING GUIDE

This section is designed to help you, the Operator, learn to fix some of the issues common to the Paloma D3 Robot. In it you will find decision trees to guide you through each troubleshooting process. Our goal is to help you better understand the machine, how it functions, and how you can keep it running throughout your shift.

The guide is divided into sections that each address a part of the machine. Each section contains decision trees for one or more issues common with that area. Use them as a guide before calling Maintenance.

CONTENTS

MACHINE

The Machine has Stopped

Check the Light Tower and select an option below.

Red Light	Orange Light	White Light	Alarm Sounding

Red Light

Did someone press an E-Stop button?

→ Yes → Check on the person and call for help.

→ No → Did some press "Stop" or "Reset"?

→ Yes → Address why you stopped the machine and restart production.

→ No → Check the Touchscreen

Orange Light

This light could mean: 1) blocked Eye, 2) downstream problem, or 3) glue not ready. Is there a message on the Touchscreen?

→ Yes

→ No → Call Maintenance

Does the message give you information OR ask you to do something?

→ Inform → Wait for the problem to be fixed.

→ Ask → Follow the directions to fix the problem.

Did the machine restart?

→ Yes 😀

→ No

White Light

No connection. Call Maintenance

Alarm Sounding

Are materials low?

→ Yes → Add materials. Did it fix the problem?

→ Yes 😀

→ No → Check the Touchscreen

→ No → Check the Touchscreen

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ROBOT

The Robot is Not Picking Up Bags

Is the Robot dropping bags or not sensing the bags on the belt?

Dropping ← → Not Sensing

See the Decision Tree on page 32 for directions.

Are the bags overlapping?

Yes ← → No

Do they start overlapping before or after the Infeed Valve Transition?

Are the bags crooked on the Conveyor Belt?

Before ← → After

Yes ← → No

Talk to the Rovema Operators to address sticky bags. They need to clean the machine.

Wipe down the Infeed Valve Transition, Conveyor Belt, and Infeed Belt. Clean the Rollers. Did that solve the problem?

Call Maintenance. There may be a problem with the Vision System.

Yes 😀 ← → No