



PACL-300[®] Automatic Capsule Loader User Manual



We don't just sell machines—
we provide service.

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Important Safety Information

READ THIS BEFORE OPERATING MACHINE

Intended Use

The intended use of this machine is to fill empty capsules into the PACL-300[®], which will then be used in the PharmaCap[®] manual capsule filler.

Potential misuse of this machine includes:

- Using any capsules that deviate from the standard two-piece design.
- Using any capsule sizes besides #00, #0, #1, and #2.
- Using softgel capsules.

General Hazards

- Keep out of reach of children.
- Keep fingers away from all moving parts.
- Inspect the automatic capsule loader before use.
- During operation keep fingers away from moving parts.
- Use this automatic capsule loader only for its intended use as described in this manual.
- Do not modify the machine in any way.

Personal Protection

For personal protection while operating the PACL-300[®], abide by these actions:

- Avoid wearing loose jewelry to prevent entanglement.
- Contain long hair to prevent entanglement.
- Wear safety goggles.
- Wear disposable latex/rubber gloves.
- Wear a hairnet (food grade products only).
- Wear a beard net if needed (food grade products only).

Important Safety Information

READ THIS BEFORE OPERATING MACHINE

Symbols



WARNING

This signals potential risk for personal injury.



CAUTION

This signals potential risk for damage to the machine or other parts.

Modes for Stopping

In the case of an emergency, press the Emergency Stop and immediately remove yourself from the PACL-300[®] Automatic Capsule Loader.



Prop. 65 Statement for CA Residents

Based on LFA's current level of knowledge of our machines, PACL-300[®] Automatic Capsule Loaders do not require a Proposition 65 warning label.

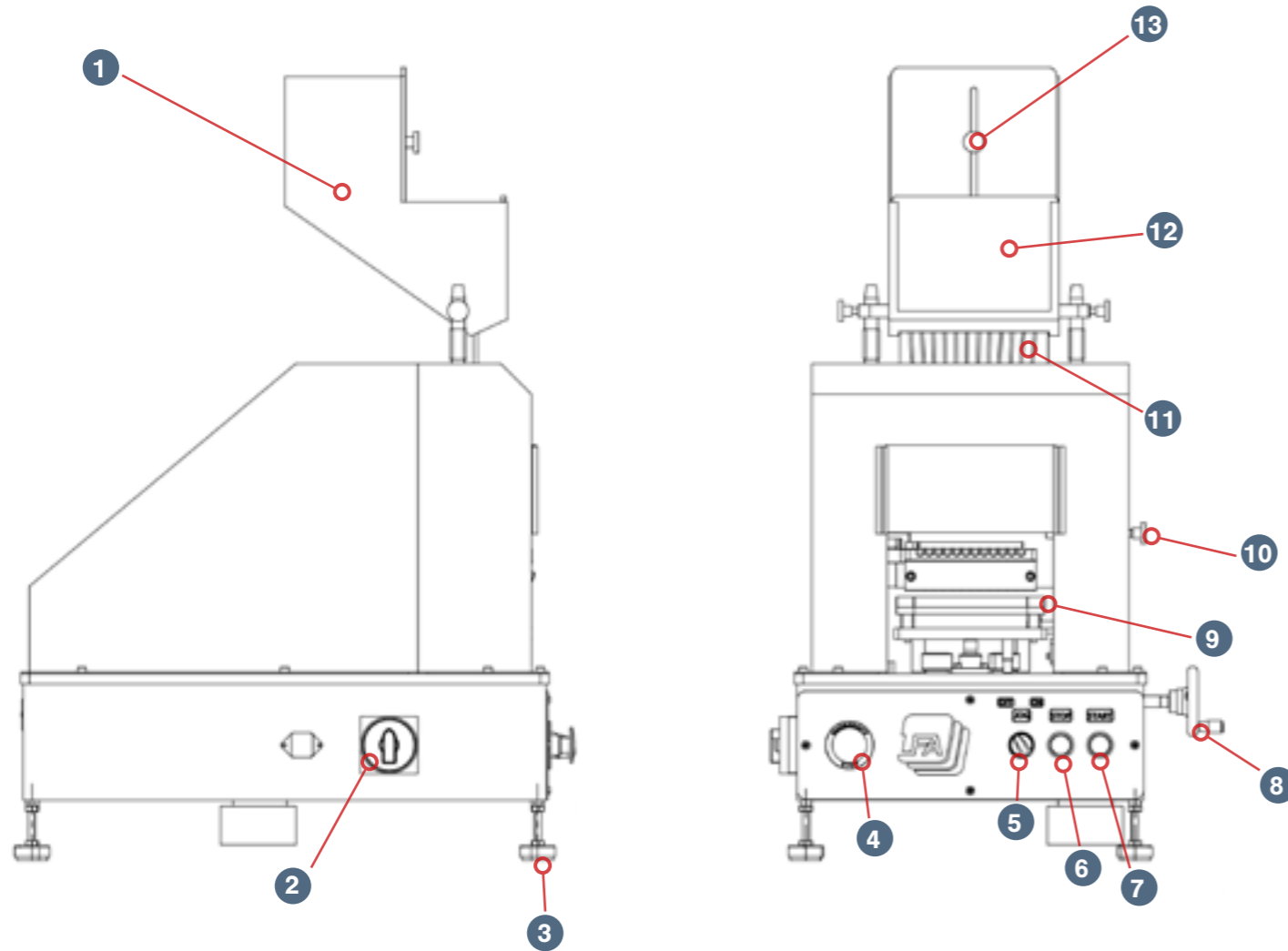
Warning for Explosive Material

This machine is not explosion proof. LFA recommends that you test your materials' explosivity before running them through this machine. If your materials are indeed explosive, do not use them with this machine.

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PACL-300[®] Parts List



- 1. Hopper
- 2. Power Switch
- 3. Anti-Vibration Feet
- 4. Emergency Stop
- 5. Jog Switch
- 6. Stop Button
- 7. Start Button

- 8. Hand Wheel
- 9. Capsule Tray Base Plate
- 10. Capsule Gate Arm
- 11. Magazine
- 12. Hopper Cover
- 13. Hopper Gate

Preface



The PACL-300[®], designed for LFA Machines' [PharmaCap[®]](#), is an automatic capsule loader that streamlines the capsule-filling process. Instead of manual insertion, the PACL-300[®] efficiently orients and places capsules into the PharmaCap[®]'s capsule holding tray. Compatible with sizes as large as #00 and as small as #2 capsules, it enhances productivity, ensuring precise and quick capsule positioning, making the PharmaCap[®]'s operation smoother and more time-efficient.

The purpose of this document is to support your understanding of the PACL-300[®] Automatic Capsule Loader components, features, functions, and design. With this manual, you will be able to successfully operate and maintain your PACL-300[®] Automatic Capsule Loader.

The user manual's content includes:

- Important safety information
- PACL-300[®] installation instructions
- Description of the PACL-300[®]'s operation
- PACL-300[®] maintenance information
- Appendix with supplemental information

Training

Machine training can be beneficial for its successful operation and your personal safety. There are several methods to prepare you for working with your automatic capsule loader.

In-Person Training

LFA offers training at our UK, USA, and Taiwan facilities for all our customers and their teams. For more information, go to <https://www.lfacapsulefillers.com/services>

Training via Video Chat/Phone

Using an online video chat system, an LFA technician can interact face-to-face with you and assist with your understanding of the machine. Or, if you prefer, LFA can provide training via phone for all customers who call the office. To set up a training, call or email your local LFA office:

UK
Phone
+44 01869 250234
Email
support.uk@lfamachines.com

USA
Phone
(682) 312-0034
Email
support.usa@lfamachines.com

Taiwan
Phone
+886 422031790
Email
support.asia@lfamachines.com

LFA Articles

LFA writes informative articles about our machines, which includes instructions, procedures, and guides. To access the articles, go to <https://www.lfacapsulefillers.com/articles>

LFA Videos

LFA has created several videos involving our machines. To access the videos, go to <https://www.lfacapsulefillers.com/videos> or <https://www.youtube.com/user/TabletPilPress>

Installation

Tools and Materials Needed

Before you install and operate the PACL-300[®] Automatic Capsule Loader, it is best to have the following tools and materials on hand for general operation and maintenance:

- Engine hoist
- Lifting strap
- Set of metric Allen keys with ball ends
- Set of metric wrenches
- Set of screwdrivers
- Lubricant (NSF approved for food grade products)
- Long wire pipe cleaner
- Toothbrush
- Cleaner (e.g. Member's Mark Commercial Lemon Fresh Disinfectant)
- Sanitizer (e.g. Member's Mark Commercial Sanitizer)
- Clean cloths
- Bagless vacuum
- Safety goggles
- Disposable latex/rubber gloves
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



The Appropriate Workstation for the Machine

Find a clean, stable, and level workspace that supports the PACL-300[®]'s 40 kg (approximately 88 lbs) weight.

Environmental Conditions

It is important that the environment in which you operate and store the PACL-300[®] Automatic Capsule Loader has the appropriate temperature and relative humidity levels. These two environmental factors can potentially cause the machine to rust and/or cause the capsules to have a lower quality. The table below shows the acceptable temperature and relative humidity levels:

Machine	Temperature		Humidity
	°C	°F	
PACL-300 [®] Automatic Capsule Loader	18-24	64-75	45-55% RH

The shipment will contain the following:

1. The PACL-300[®] Automatic Capsule Loader
2. Hand Wheels
3. Electrical Wire
4. Fill Tray



Unpacking the PACL-300[®]

Tools Needed

- Crowbar
- Hammer

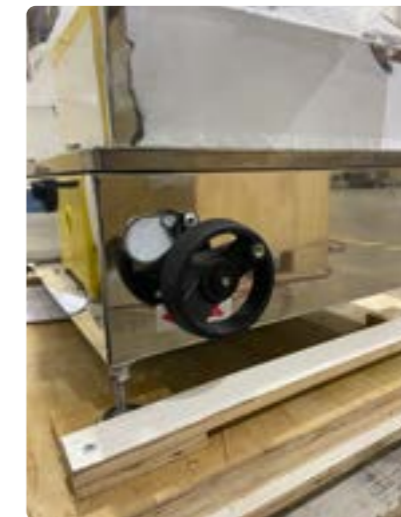
Instructions

1. Pry open each side of the shipping container with a crowbar and hammer and remove them.
2. Place the Hopper on top of the Capsule Magazine and the PACL-300[®] and secure it with an Allen key.
3. Insert and secure the Hopper Cover and Hopper Gate onto the Hopper.



4. Insert and secure the Hand Wheels on the righthand side and back of the machine.

5. Hopper
6. Hopper Cover and Hopper Gate



Positioning the PACL-300[®]



WARNING: To prevent personal injury, wear steel toe boots and heavy duty grip gloves while transporting the PACL-300[®].

Because of its weight, LFA does NOT recommend carrying the machine manually but rather with an engine hoist. At least two people should be involved (one operating the engine hoist and one stabilizing the machine) in removing the machine from the shipping container and placing it in the workspace.

Moving the PACL-300[®] with an Engine Hoist

Tools Needed

- Engine hoist and lifting strap
- Crosshead screwdriver
- Heavy duty grip gloves
- Steel toe boots

Instructions

1. Remove the screws from the woodblocks on the shipping container's base with a screwdriver.



2. Wrap the lifting strap around the machine and secure it around the engine hoist and carefully guide the machine to the desired location.

Controls

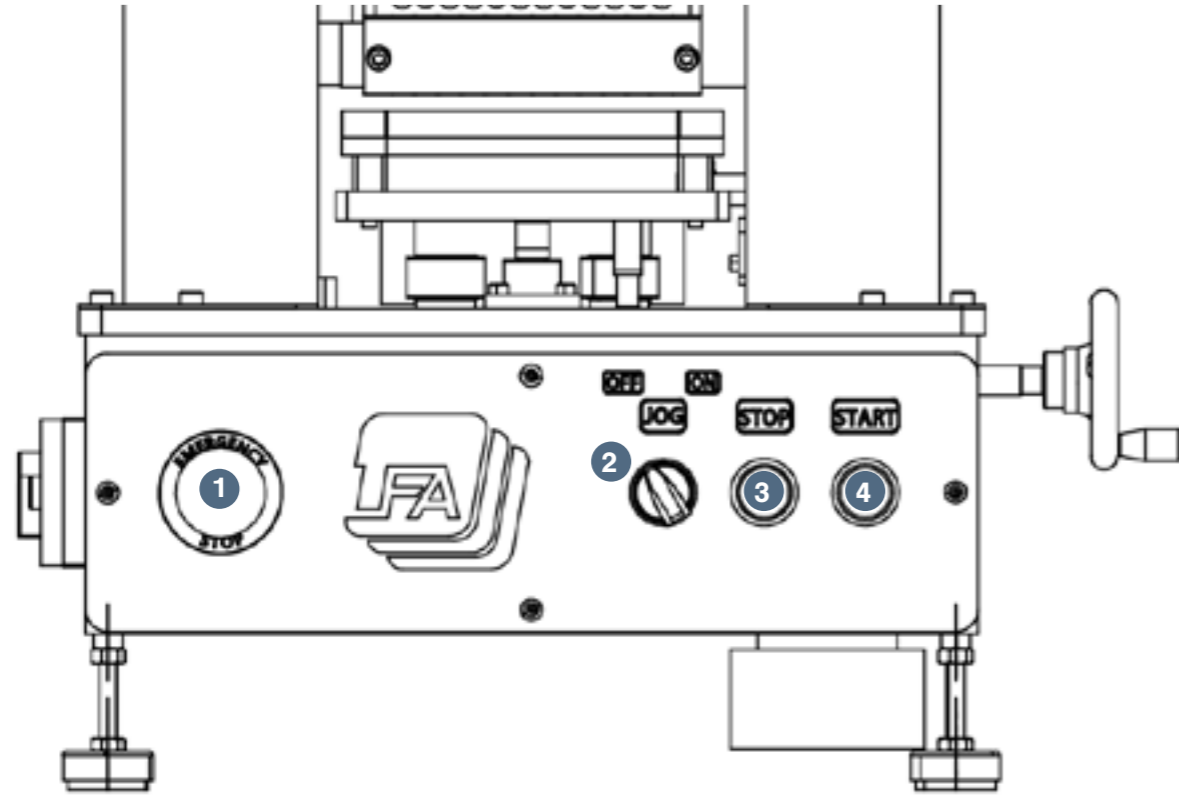
Basic Components



A description of the principal components follows:

- The **Capsule Hopper** holds the empty capsules to be distributed through the machine.
- The **Capsule Sewing Mechanism** aligns the capsules in the correct position with a magazine and inserts them into the PharmaCap[®] capsule holding tray.
- The **Capsule Gate Arm** holds the capsules in place in the Capsule Sewing Mechanism.
- The **Capsule Tray Base Plate** holds the PharmaCap[®] capsule holding tray, into which the capsules are inserted.

Control Console



- 1. Emergency Stop
- 2. Jog Switch

- 3. Stop Button
- 4. Start Button

PACL-300® Automatic Capsule Loader Process

The basic mechanism of the PACL-300® involves distributing capsules from Hopper, orienting the capsules, and inserting the capsules into the capsule holding tray.

Pouring Capsules into Machine

Capsules are poured into the Capsule Hopper, which then distributes them into the Capsule Sewing Mechanism.



Orienting the Capsules

Within the Orienter Assembly, the capsules meet fork components that position the capsules cap-side up.



Inserting the Capsules into the Capsule Holding Tray

The Capsule Sewing Mechanism then inserts the capsules, cap-side up, into the capsule holding tray.



How to Use the PACL-300® to Insert Capsules into the PharmaCap®

Tools and Materials Needed

- Empty capsules (purchase at <https://www.lfacapsulefillers.com/products/empty-capsules>)
- PACL-300®
- PharmaCap®
- Safety goggles
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

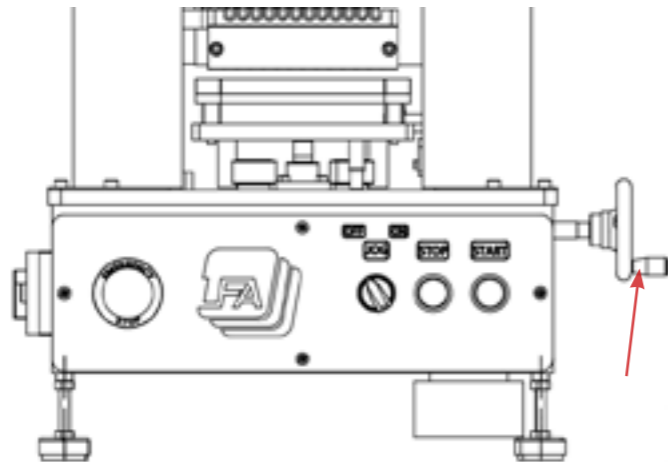


WARNING: For personal protection while operating the PACL-300®, contain long hair and do not wear loose jewelry.

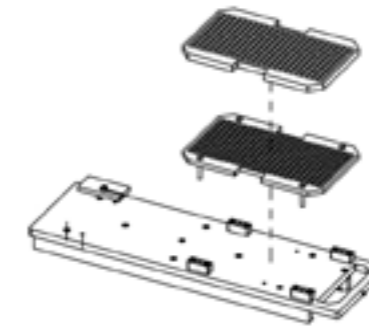
Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Rotate the front Hand Wheel all the way counterclockwise and ensure that the Capsule Magazine is at the lowest position.



2. Pour capsules into the Capsule Hopper.
3. Pull out by hand the Capsule Tray Base Plate.
4. Insert the PharmaCap® capsule holding tray and Fill Tray onto the Capsule Tray Base Plate.

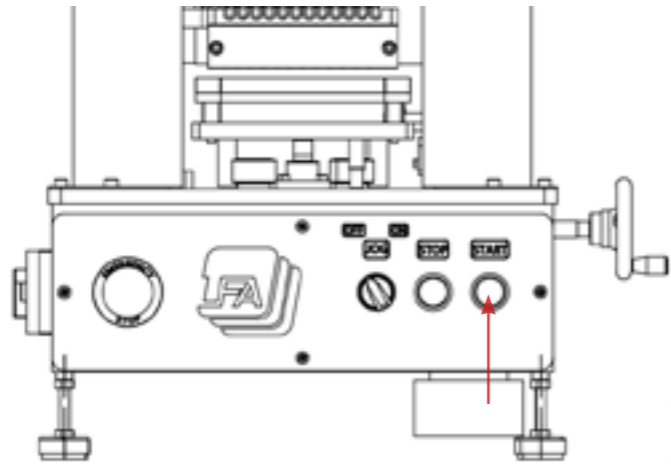


5. Ensure that the Capsule Gate Arm is pushed in.



6. Press the Start button to begin operation.

6.1 Note: The machine will automatically stop when the capsule holding tray has filled.



7. Rotate the Hand Wheel clockwise.

8. Carefully lift up the capsule holding tray from the Capsule Tray Base Plate.



CAUTION: Lift up the capsule holding tray from the bottom four corners. Avoid pushing up the capsules with your hands.

9. Place the filled Capsule Holding Tray onto the PharmaCap®.



Settings and Adjustment

The PharmaCap® Capsule Filler's Tooling size changes requires parts to be switched on the PACL-300®.

Capsule Size Changes

If you are switching capsule sizes, not only should the Tooling on the PharmaCap® be changed, but also the PACL-300®'s Magazine Assembly, Orienter Assembly, and Capsule Tray Base Plate.

Tools and Materials Needed

- Metric set of Allen keys with ball ends
- New Capsule Magazine, Orienter Assembly, and Capsule Tray Base Plate
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



WARNING: For personal protection while adjusting the PACL-300®, contain long hair and do not wear loose jewelry.



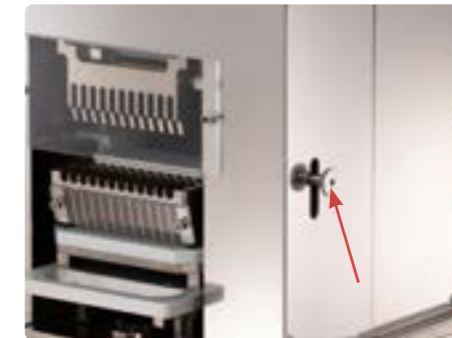
WARNING: To prevent any potential personal injury, ALWAYS push the PACL-300®'s Emergency Stop button when making adjustments.

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

Remove the Capsule Magazine and Orienter Assembly

1. Remove knob of the Capsule Gate Arm by rotating it by hand counterclockwise and take off the front and back covers of the PACL-300® with an Allen key.



2. Pull out the Capsule Gate Arm.

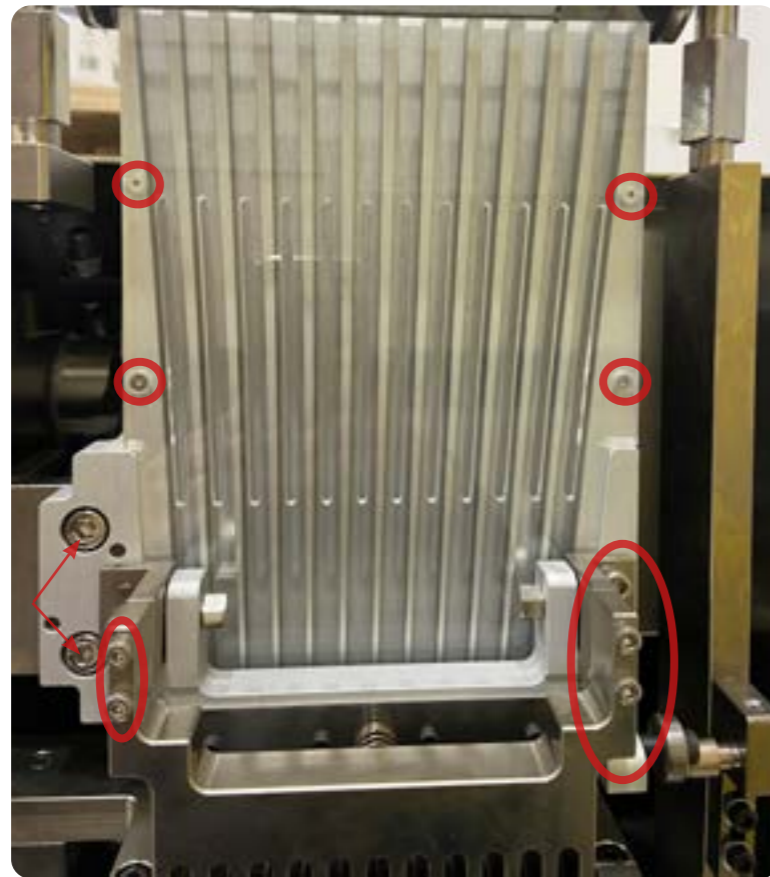
3. Remove the slide underneath the Capsule Magazine Teeth with an Allen key.



4. While supporting the Orienter Assembly with one hand, loosen the screws on the left side with an Allen key.
5. Rotate the Hand Wheel at the back of the machine until the Capsule Magazine is at its lowest position, then stop rotating just when it begins to come up again.



6. Loosen the Capsule Magazine's screws and remove it from the machine.



Capsule Magazine and Orienter Assembly

7. Rotate the Hand Wheel at the back of the machine until the block is at the lowest position, then stop rotating just when it begins to come up again.
8. While supporting the new Capsule Magazine with one hand, insert it into the bottom of the Hopper and tighten its screws with an Allen key.
9. Rotate the Hand Wheel at the back of the machine until the Capsule Magazine is at its highest position.
10. Insert the Orienter Assembly into the machine and secure it with an Allen key.
11. Insert the new slide underneath the Capsule Magazine Teeth and secure it with an Allen key.

Maintenance

To ensure that the PACL-300[®] Automatic Capsule Loader will have a long operational life, maintenance is essential. This section includes methods for troubleshooting solutions and how often to grease and clean your machine to keep its performance optimal.

General Maintenance Prescriptions

- Use the maintenance checklist (found in the Appendix) before, during, and after machine operation.
- Make sure all grease points are maintained and regularly lubricated.
- Use an appropriate amount of lubricant.
- After cleaning the machine, make sure that the parts are dried and oiled.

Lubrication

Regularly greasing your machine is vital to prolonging its operational life. Parts that are not greased properly can make the capsule loader seize up and cause major problems later. LFA recommends maintaining a lubrication schedule for your PACL-300[®], which can be found in this section.

Tools and Materials Needed

- Food grade lubricant
- Disposable latex/rubber gloves (for food grade products and to protect hands from grease)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



WARNING: To prevent any potential personal injury, ALWAYS push the PACL-300[®]'s Emergency Stop button during maintenance.

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

1. Loosen the knob on the Capsule Arm Gate.



2. Remove the front cover and back cover of the machine by taking off the screws with an Allen key.

3. Lubricate all high traction areas on the L Bracket inside the machine.





4. Lubricate the gear rack underneath the Capsule Tray Base Plate machine.



Lubrication Schedule

LFA recommends the following PACL-300® parts to be lubricated according to the following frequency:

Part	Location	Image	Frequency	Type of Lubricant
L Bracket	Inside the machine, past the front cover		Daily	NLGI Grade 2
Gear Rack	Underneath the bottom of the machine		Daily	NLGI Grade 1

Cleaning

After the PACL-300®'s operation, powder may accumulate in the machine. It is important to clean the machine thoroughly to prevent rusting and cross contamination.

LFA recommends that the machine be cleaned after each operation.

Tools and Materials Needed

- Bagless vacuum
- Set of metric wrenches
- Set of metric Allen keys
- Long wire pipe cleaner
- Toothbrush
- Cleaner (e.g. Member's Mark Commercial Lemon Fresh Disinfectant)
- Sanitizer (e.g. Member's Mark Commercial Sanitizer)
- Potable water and clean cloths
- Disposable latex/rubber gloves
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)



WARNING: To prevent any potential personal injury, ALWAYS push the PACL-300®'s Emergency Stop button during cleaning.

Instructions

Note: Wear safety goggles and latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

Clean the PACL-300® and Accessories

1. Remove all residual material from the PACL-300®'s exterior with the cleaning brush and a bagless vacuum.
2. Loosen the knob on the Capsule Arm Gate and remove the front and back cover with an Allen key.
3. Use the cleaner on the Feeder Tray, Capsule Tray Base Plate, Capsule Magazine, and Orienter Assembly.
 - 3.1 Note: Use the long wire pipe cleaner and toothbrush to remove any debris.
4. Sanitize the Capsule Tray Base Plate, Capsule Magazine, and Orienter Assembly with a clean cloth and reassemble it to the machine.



Troubleshooting

Sometimes unavoidable issues will occur while operating the PACL-300®. Fortunately, there are several methods to remedy these issues.

Common Issues

Symptom	Possible Cause	Possible Solution
Capsules are not loading into capsule holding tray	Capsule Gate Arm is not fully pushed in.	Rotate the machine until the Capsule Magazine is raised up, then push the Capsule Gate Arm all the way in.
	Capsule holding tray is dirty.	Remove any debris from the capsule holding tray bores by cleaning it.
Some capsules are not loading into the capsule holding tray	There are not enough capsules in the Hopper.	Add more capsules to the Hopper.
	The Hopper Gate needs to be adjusted.	Raise or lower the Hopper Gate and adjust as needed.
	Capsules are stuck or jammed in the Capsule Magazine.	Capsules may be the wrong size or the working environment is too humid or static.
	Capsules are not being released from the Capsule Magazine.	Make adjustments to the Capsule Gate Arm.
	Capsules are stuck in the Orienter Assembly.	Capsules may be the wrong size or the working environment is too humid or static.
Capsules drop too soon or too late	Operating after jam or pressing Emergency Stop.	Manually rotate the machine for two turns and it should be reset.
Capsules are orienting with body side up	The slide underneath the Magazine Teeth is misaligned.	Adjust the slide.
	The Orienter Assembly may be damaged.	Replace the Orienter Assembly.

Storing the PACL-300®

After its thorough cleaning, the PACL-300® Automatic Capsule Loader needs to be stored in the proper conditions. It is important to store it in an environment in which the machine is safe from rusting. The PACL-300®'s high traction areas need to be lubricated before storing it.

Tools and Materials Needed

- Food grade lubricant
- Disposable latex/rubber gloves (for food grade products and to protect hands from lubricant)
- Hairnet and/or beard net (food grade products only)
- Sterile shoe covers (food grade products only)

Instructions

Note: Wear latex/rubber gloves (and appropriate food grade attire if applicable) during this process.

Lubricate the L Bracket

Open the front panel of the machine and lubricate the high traction areas of the L Bracket.

Lubricate the Guide Rack

Apply NLGI Grade 1 and Grade 2 grease to the Guide Rack underneath the machine.

If the machine is not to be in use for a long time, make sure the covers are back on and that the Capsule Tray Base Plate is fully inserted in the machine.



Environmental Conditions

It is important that the environment in which you store the PACL-300® has the appropriate temperature and relative humidity levels. These two environmental factors can potentially cause damage to the machine. The table below shows the acceptable temperature and relative humidity levels:

Machine	Temperature		Humidity
	°C	°F	
PACL-300®	15-28	59-83	45-55% RH

Appendix

Material of Contact Parts

Contact Part	Material
Capsule Hopper	SUS304
Capsule Orientation Teeth	S45C with electroless nickel coating
Capsule Magazine	AL6061
Feeding Tray	AL6061

Technical Specifications

Machine	PACL-300®
Description	Automatic Capsule Loader
Number of Stations	300 (12x25)
Max Production Capacity	300 pcs / 25 sec
Motor Power	0.2 kW / 0.25 hp
Power USA	3 A / 110 V (60 Hz)
Power UK	1.7 A / 240 V (50 Hz)
Dimensions	518 mm x 642 mm x 909 mm
Weight	80.8 kg / 178.13 lbs

Bores per Capsule Holding Tray

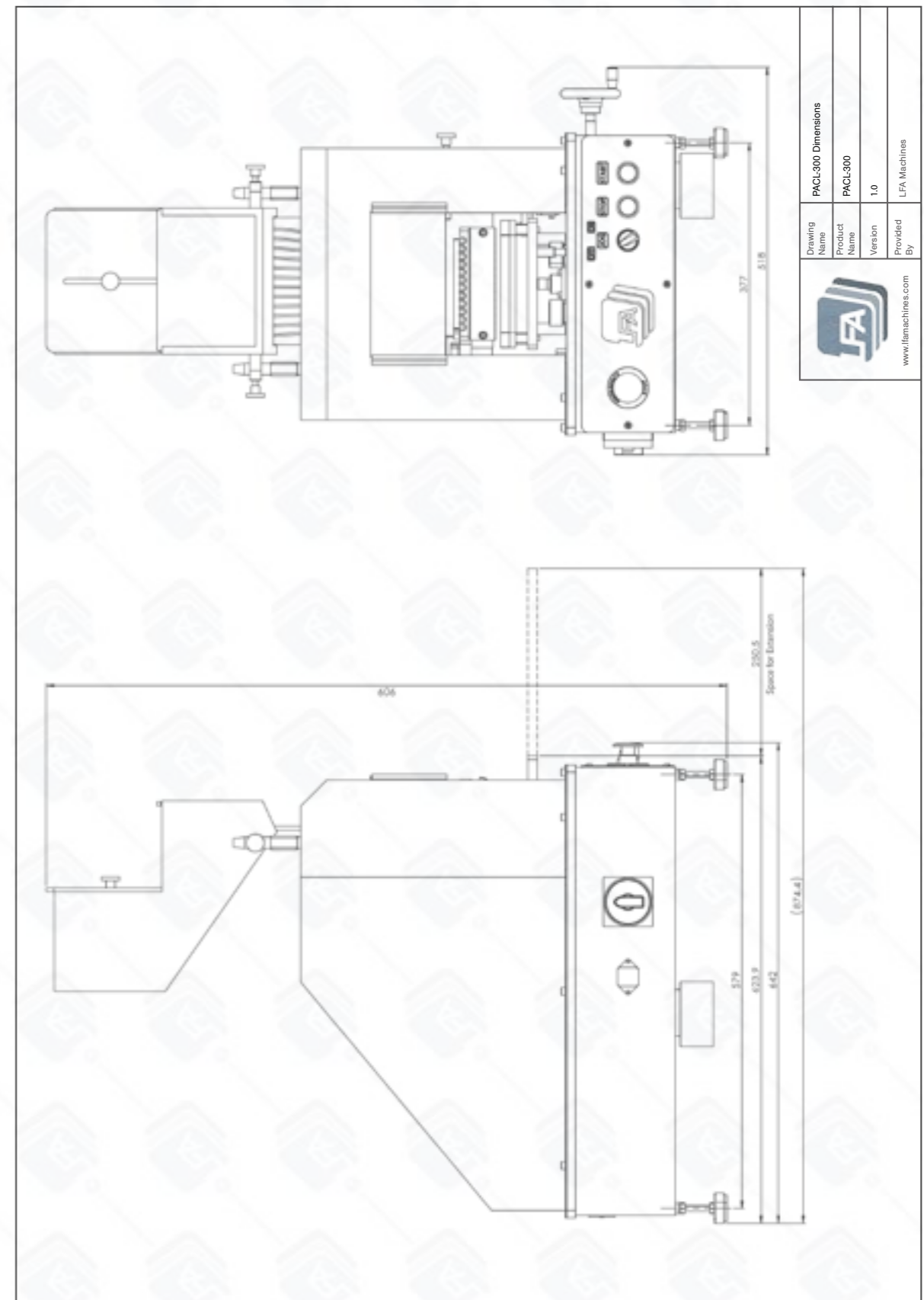
Plate Size	Number of Bores/Plates	Maximum Output/Hour
#00	300	6,000
#0	300	6,000
#1	300	6,000
#2	300	6,000

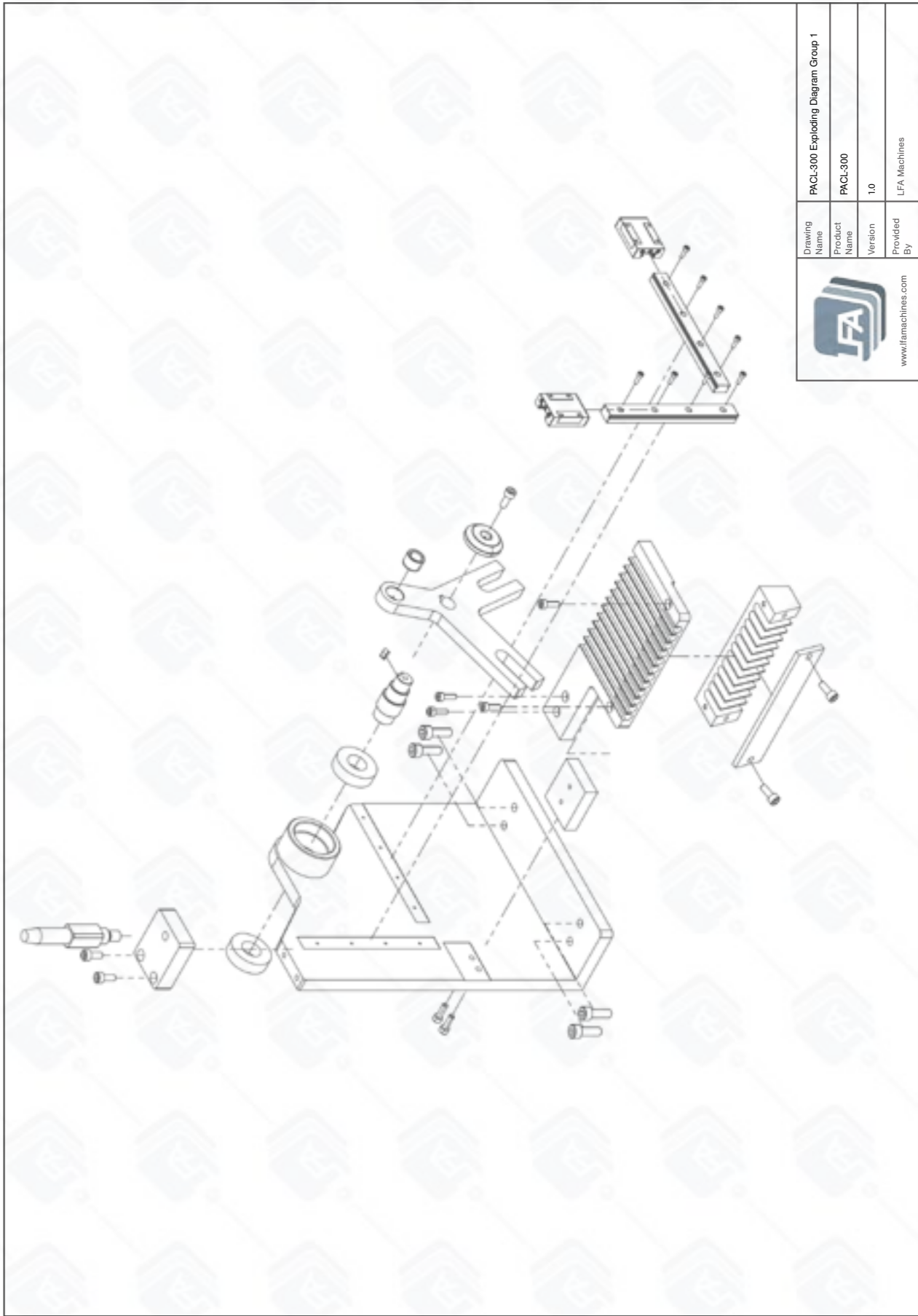
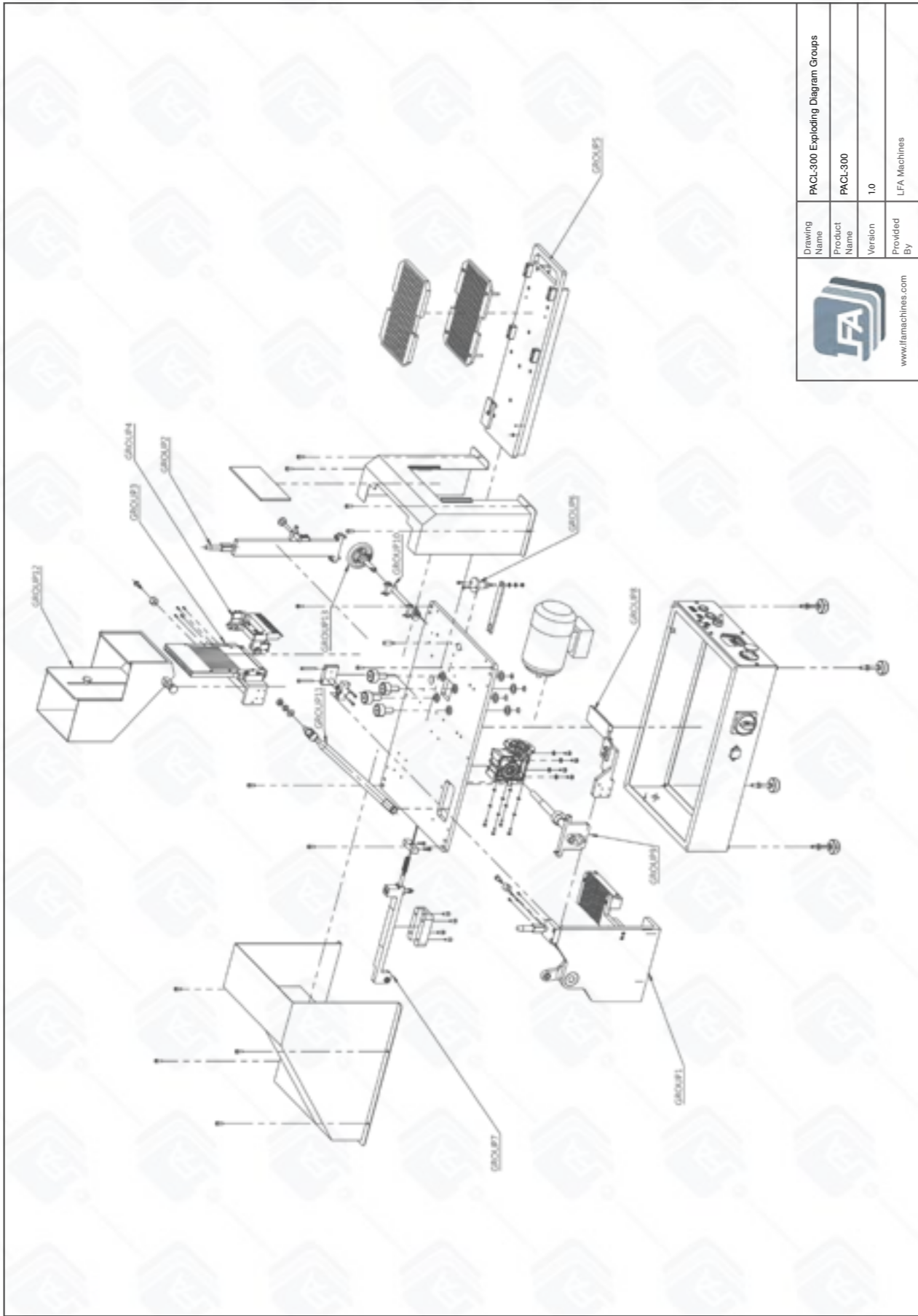
Maintenance Checklist

Before Operation	
<input type="checkbox"/>	Visually inspect the machine and the parts.
<input type="checkbox"/>	Ensure all nuts and bolts are tight.
<input type="checkbox"/>	Operate the machine with no capsules to ensure it is not jammed.
During Operation	
<input type="checkbox"/>	Watch for buildup of powder in the Capsule Magazine and the Orienter Assembly.
<input type="checkbox"/>	Inspect the loaded capsules for any defects or damage.
After Operation	
<input type="checkbox"/>	Remove all excess powder with a bagless vacuum.
<input type="checkbox"/>	Dismantle the machine and clean its necessary parts.
<input type="checkbox"/>	Wipe down the other surfaces with a damp cloth and dry with the cleaning cloth.
<input type="checkbox"/>	Apply grease to all the hinges of the Hand Wheels and other high-traction areas.
<input type="checkbox"/>	Store the machine in a clean, dry, and cool place.

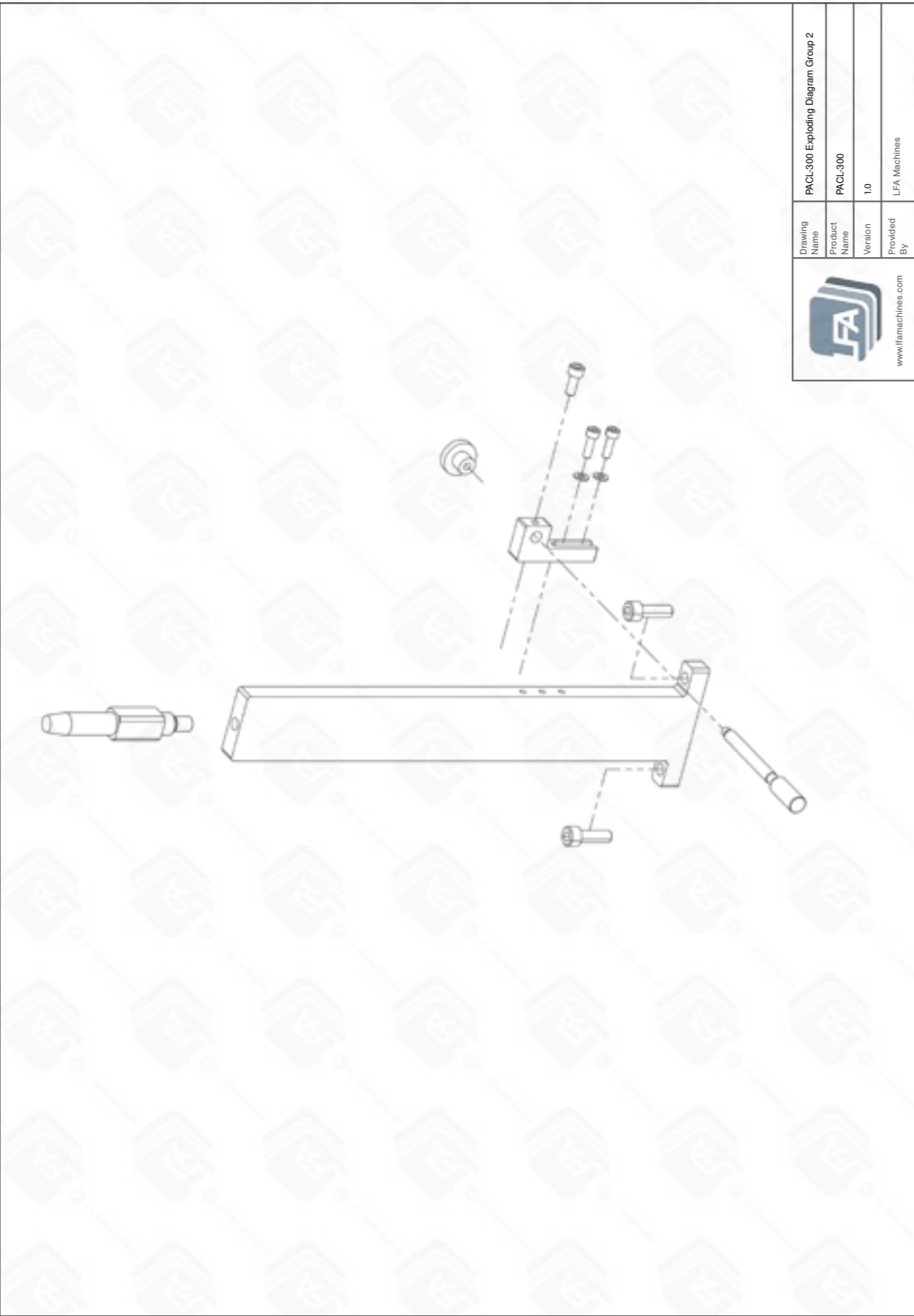
Diagrams

PACL-300® Dimensions

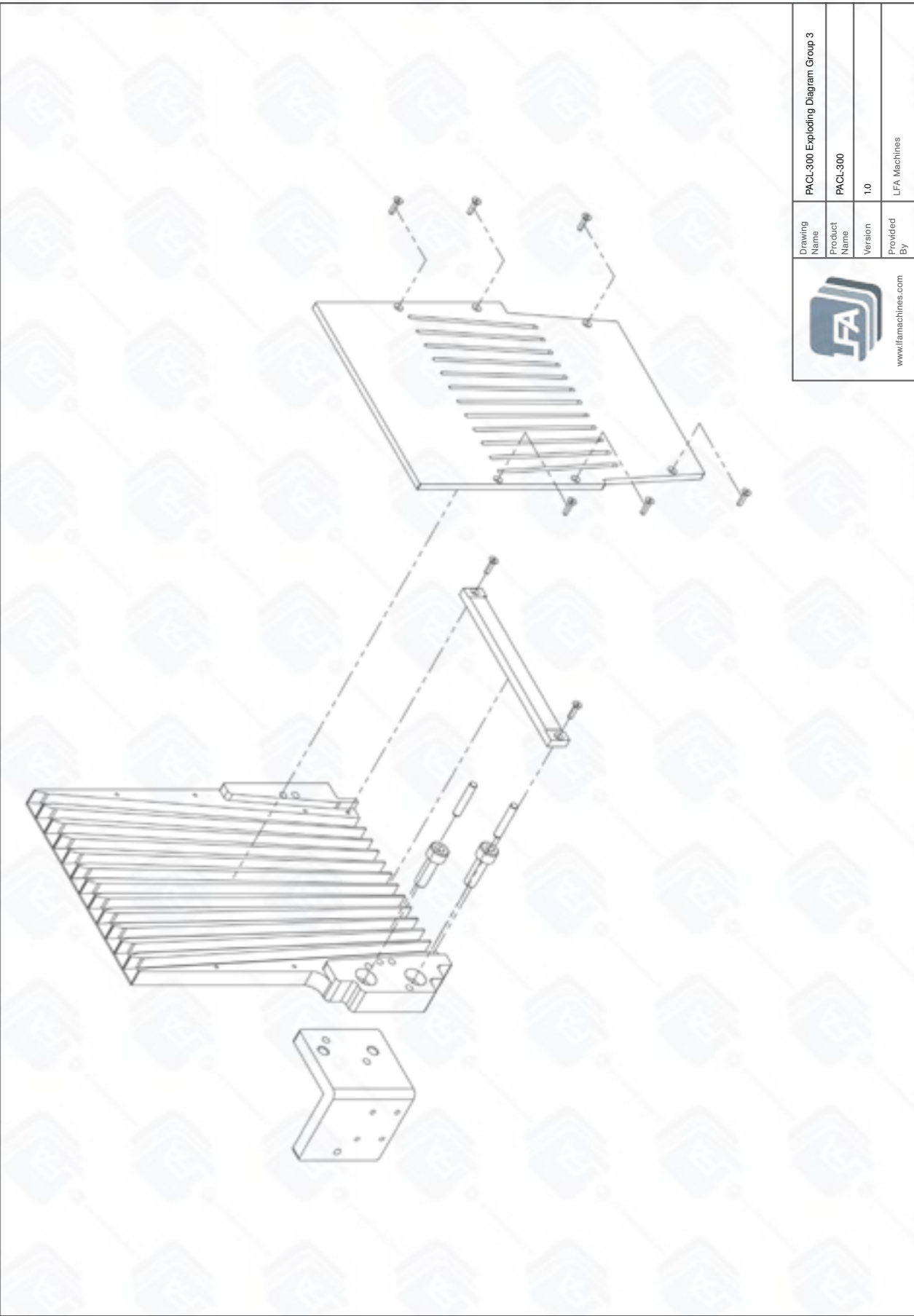




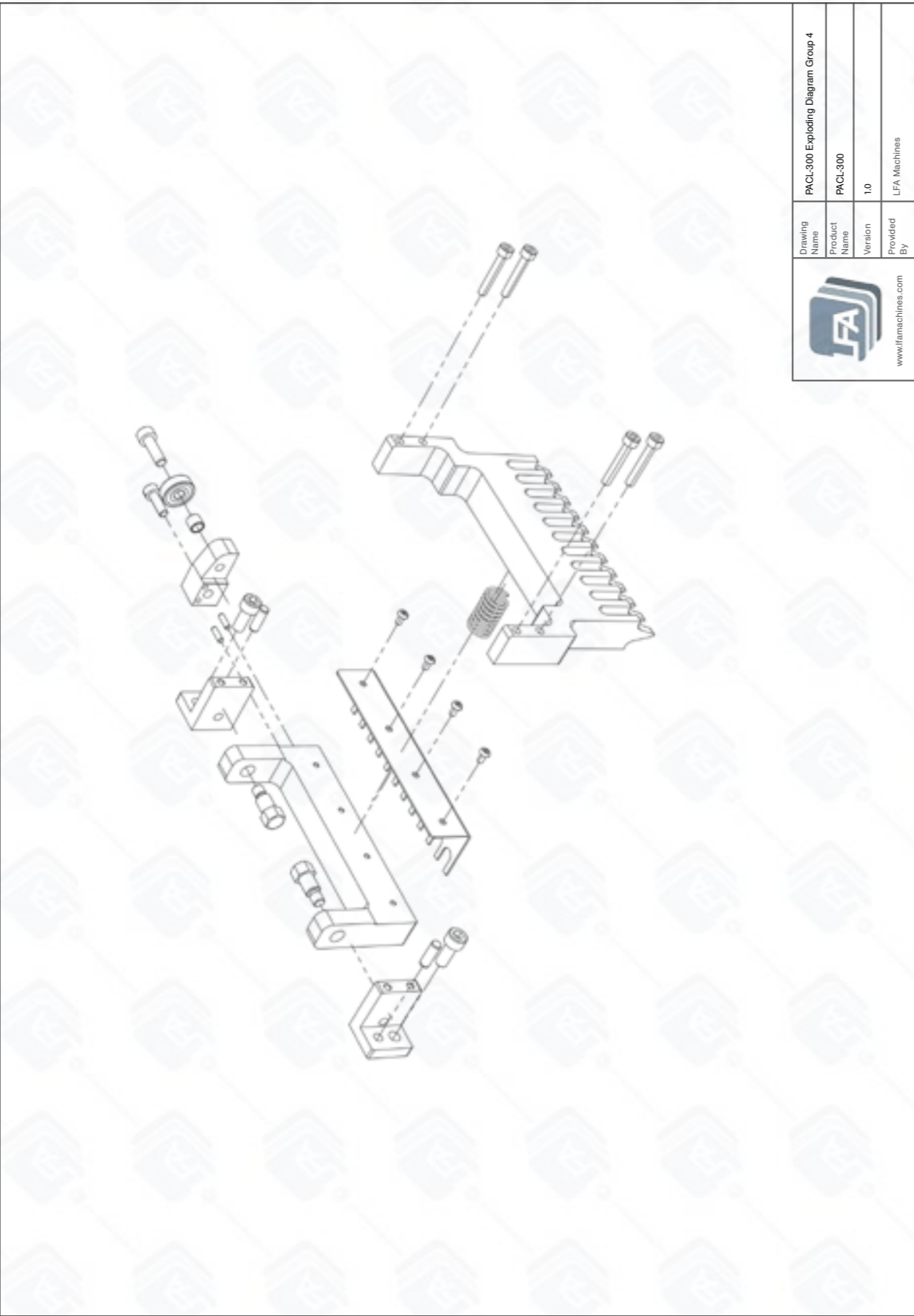
PACL-300® Exploding Diagram Group 2



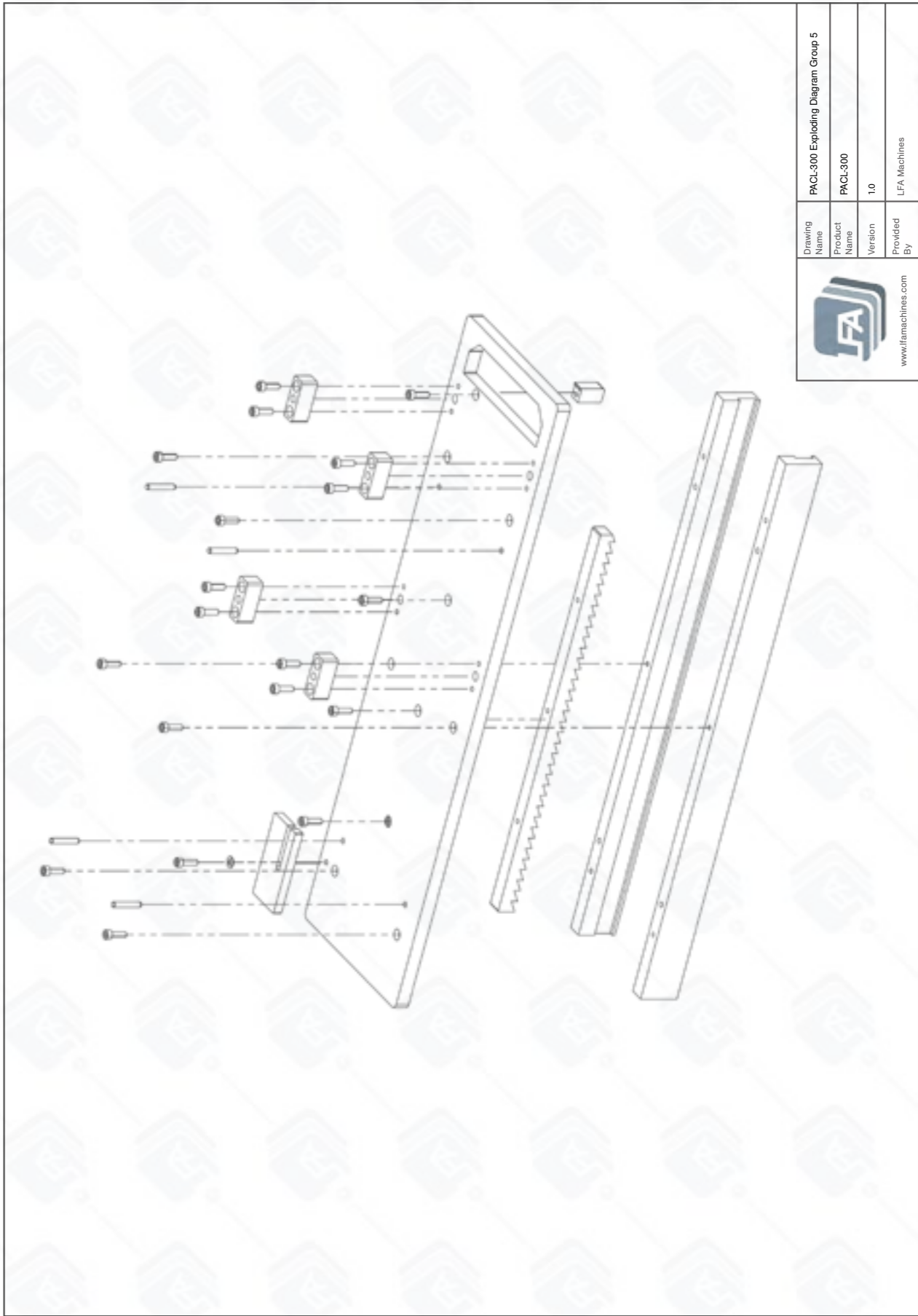
PACL-300® Exploding Diagram Group 3



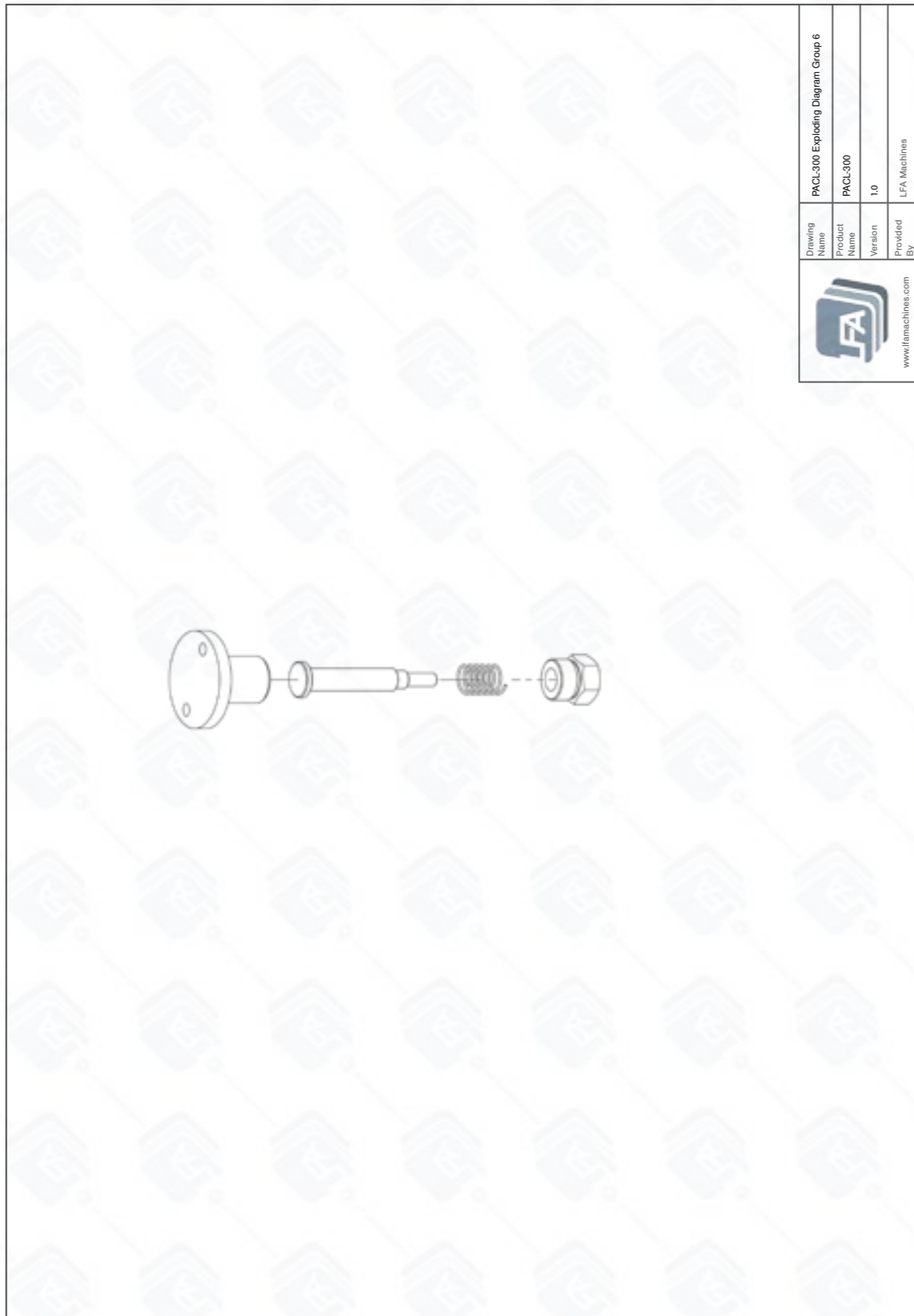
PACL-300® Exploding Diagram Group 4



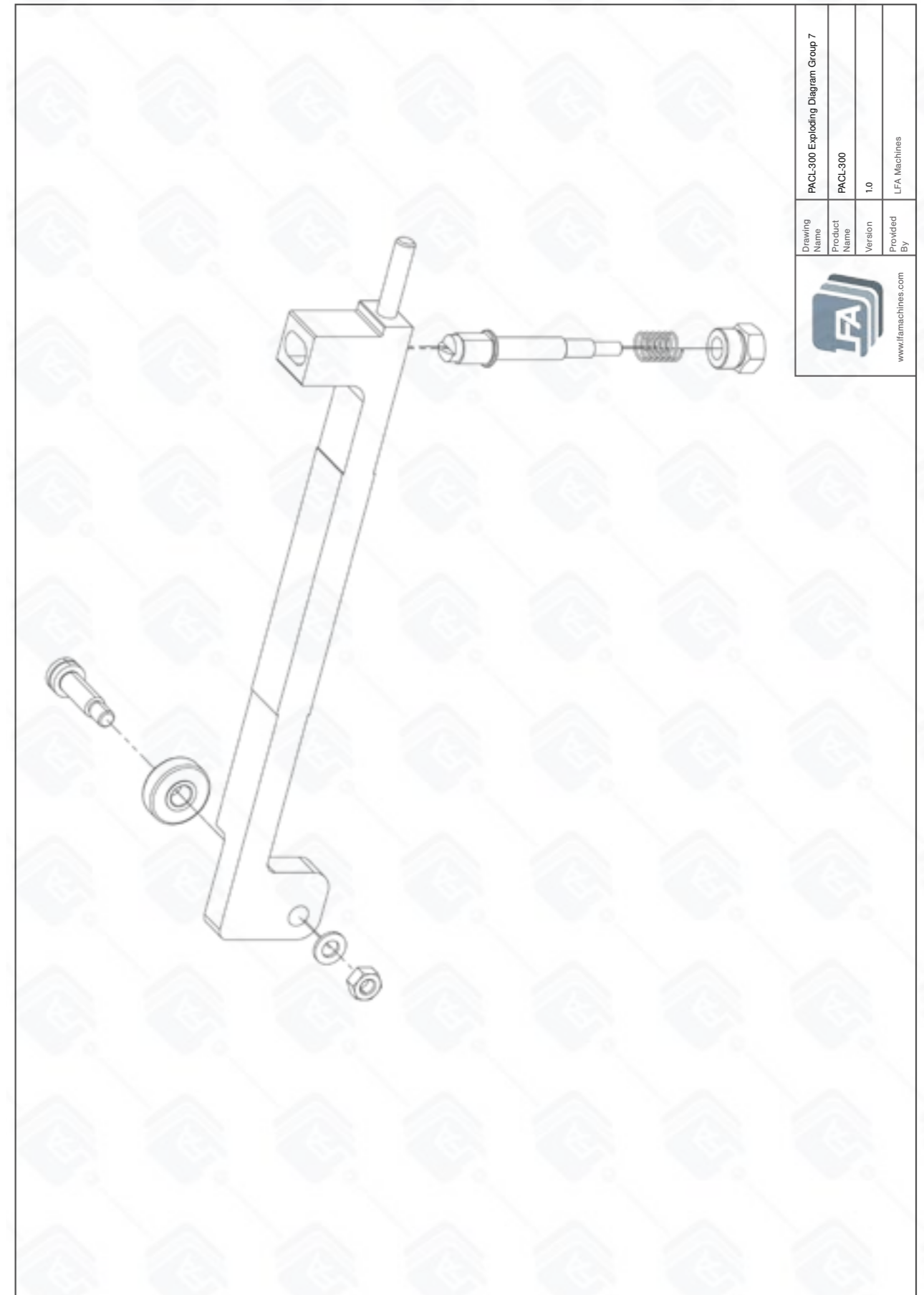
PACL-300® Exploding Diagram Group 5



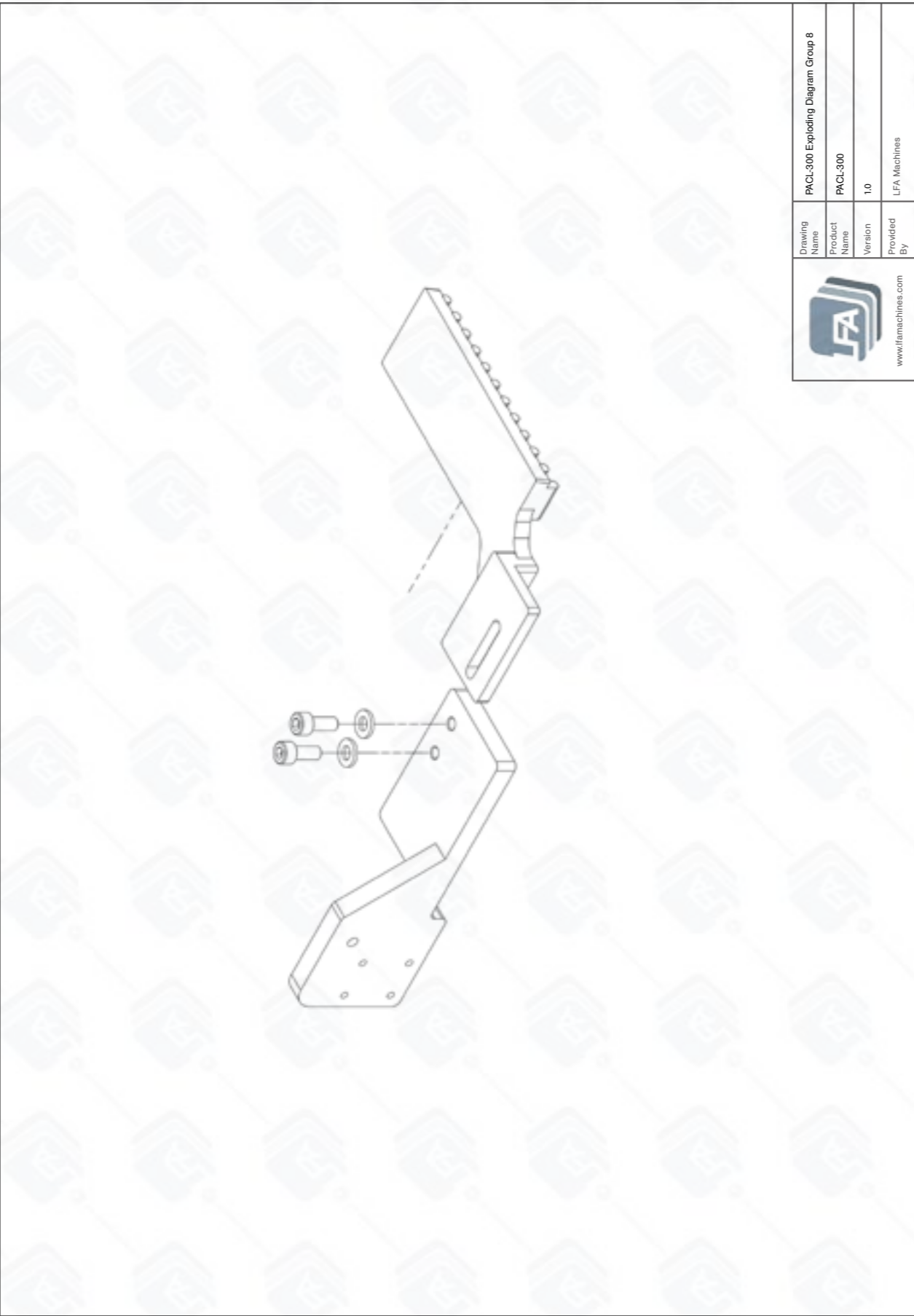
PACL-300® Exploding Diagram Group 6



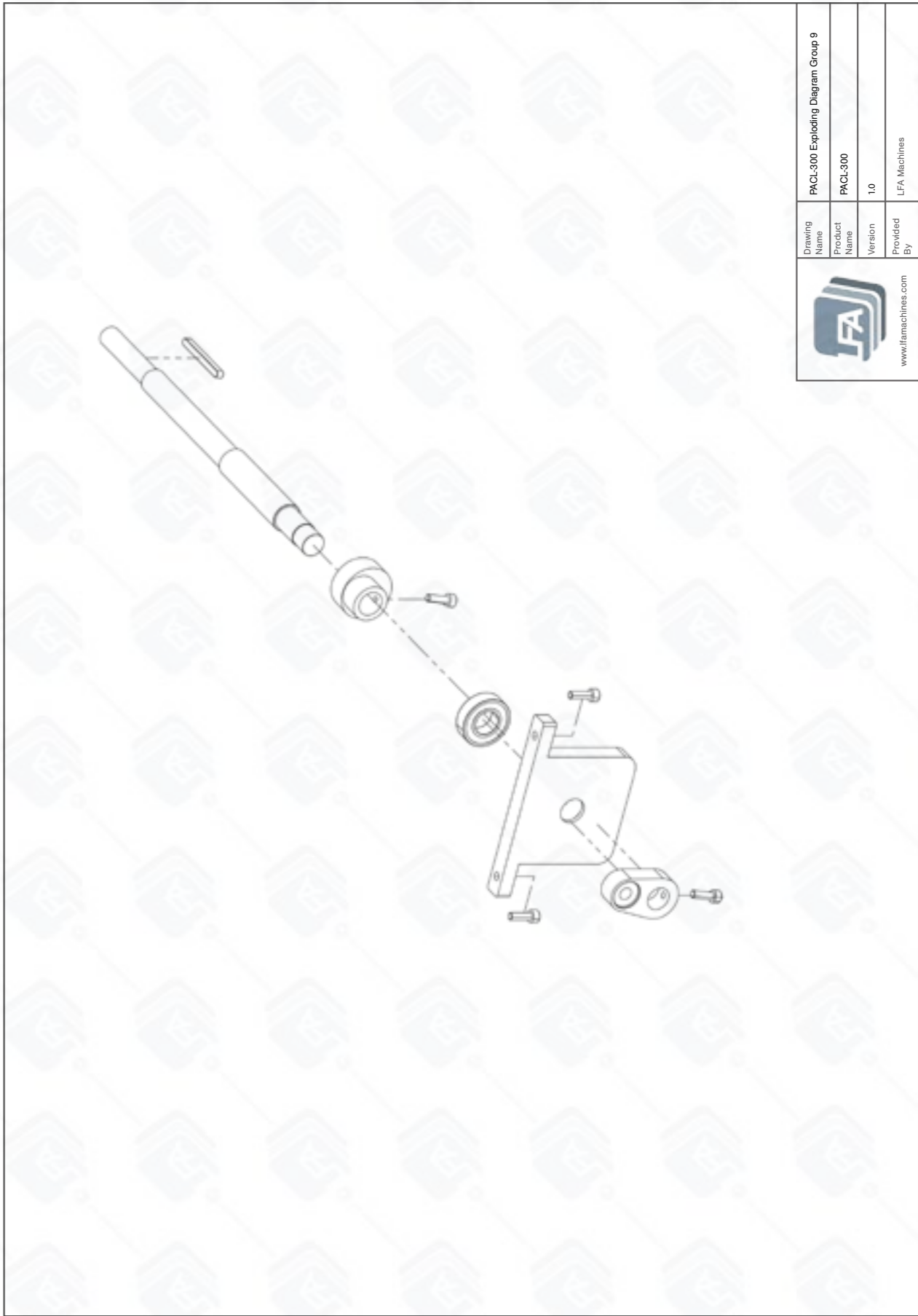
PACL-300® Exploding Diagram Group 7



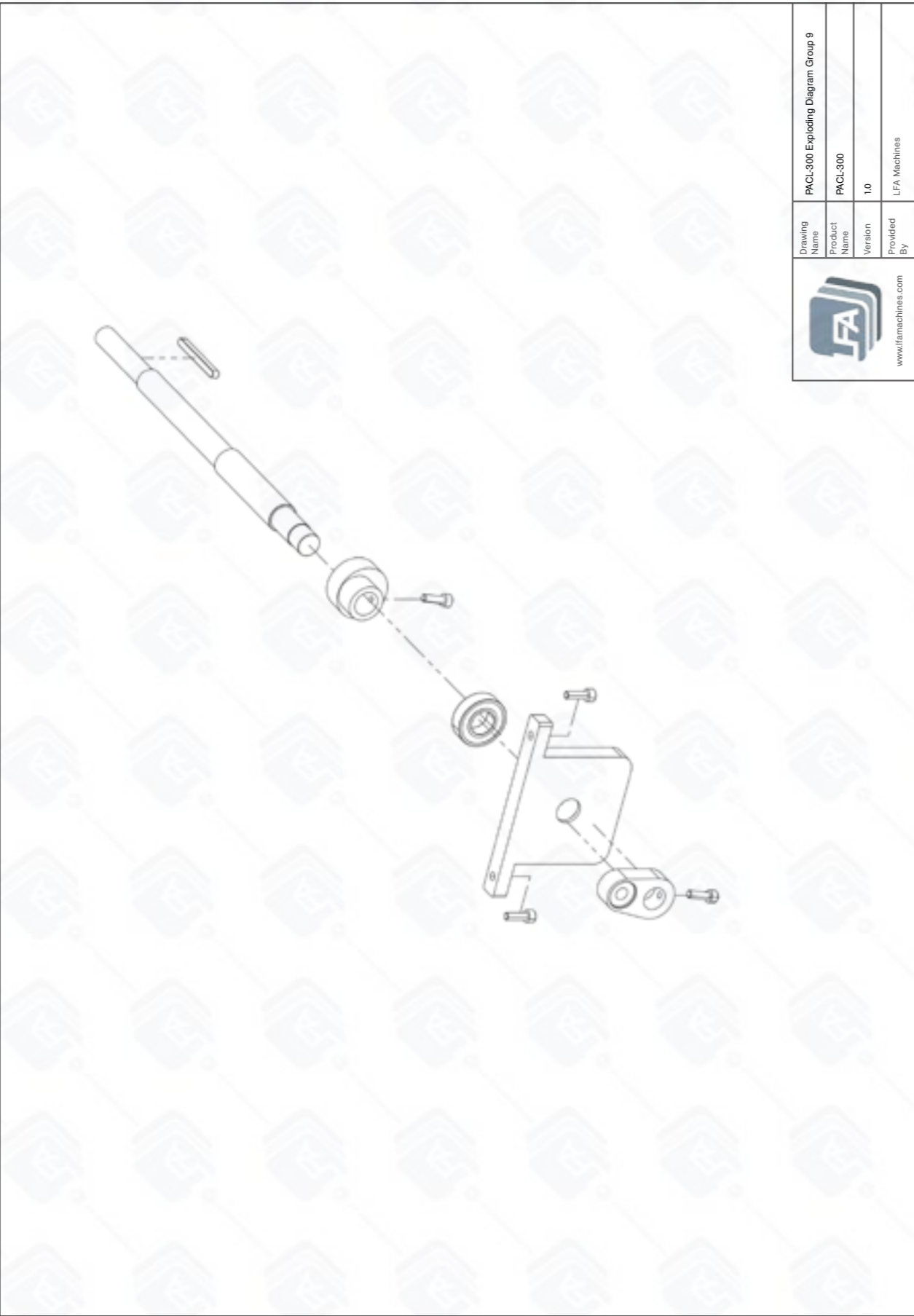
PACL-300® Exploding Diagram Group 8



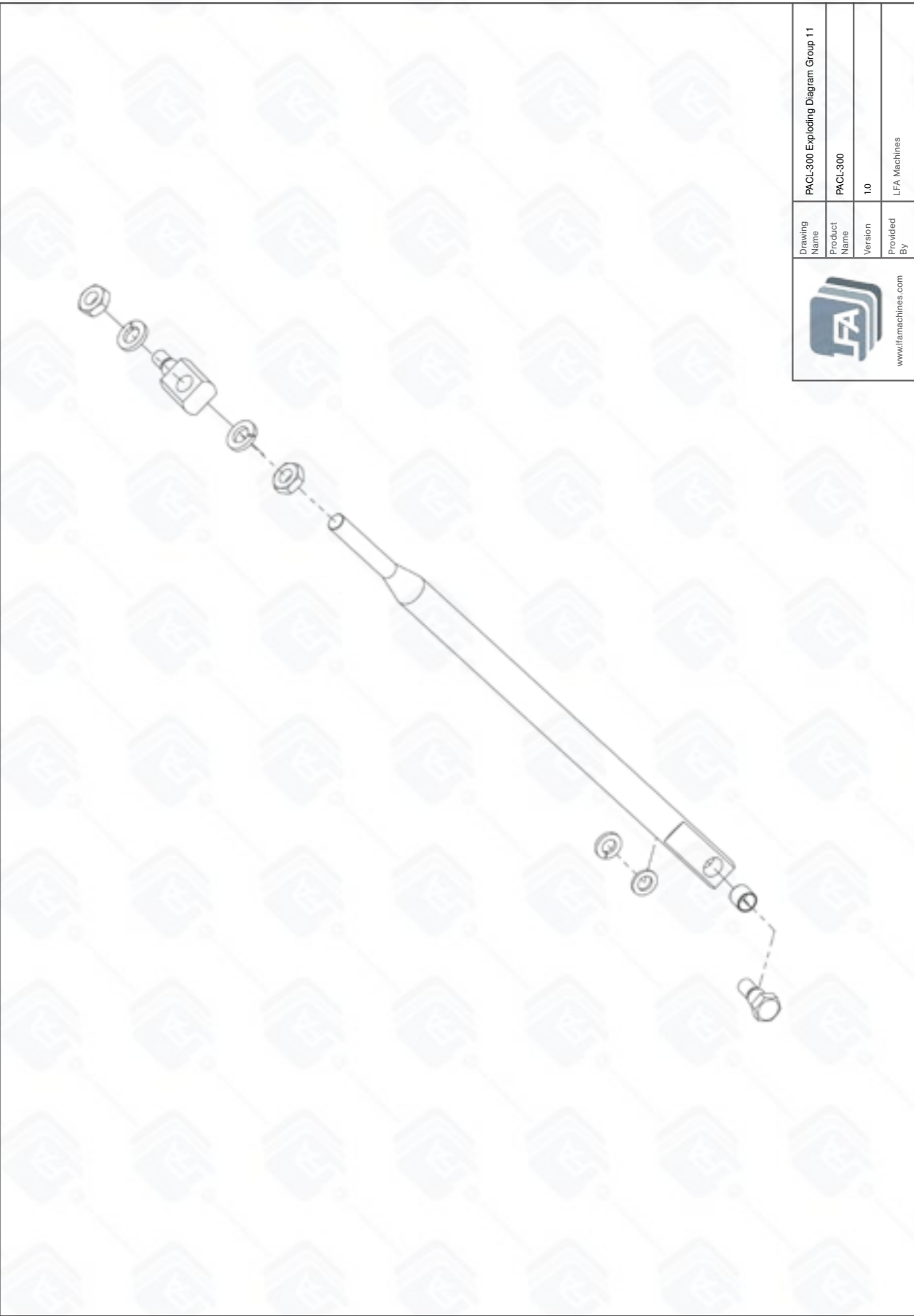
PACL-300® Exploding Diagram Group 9



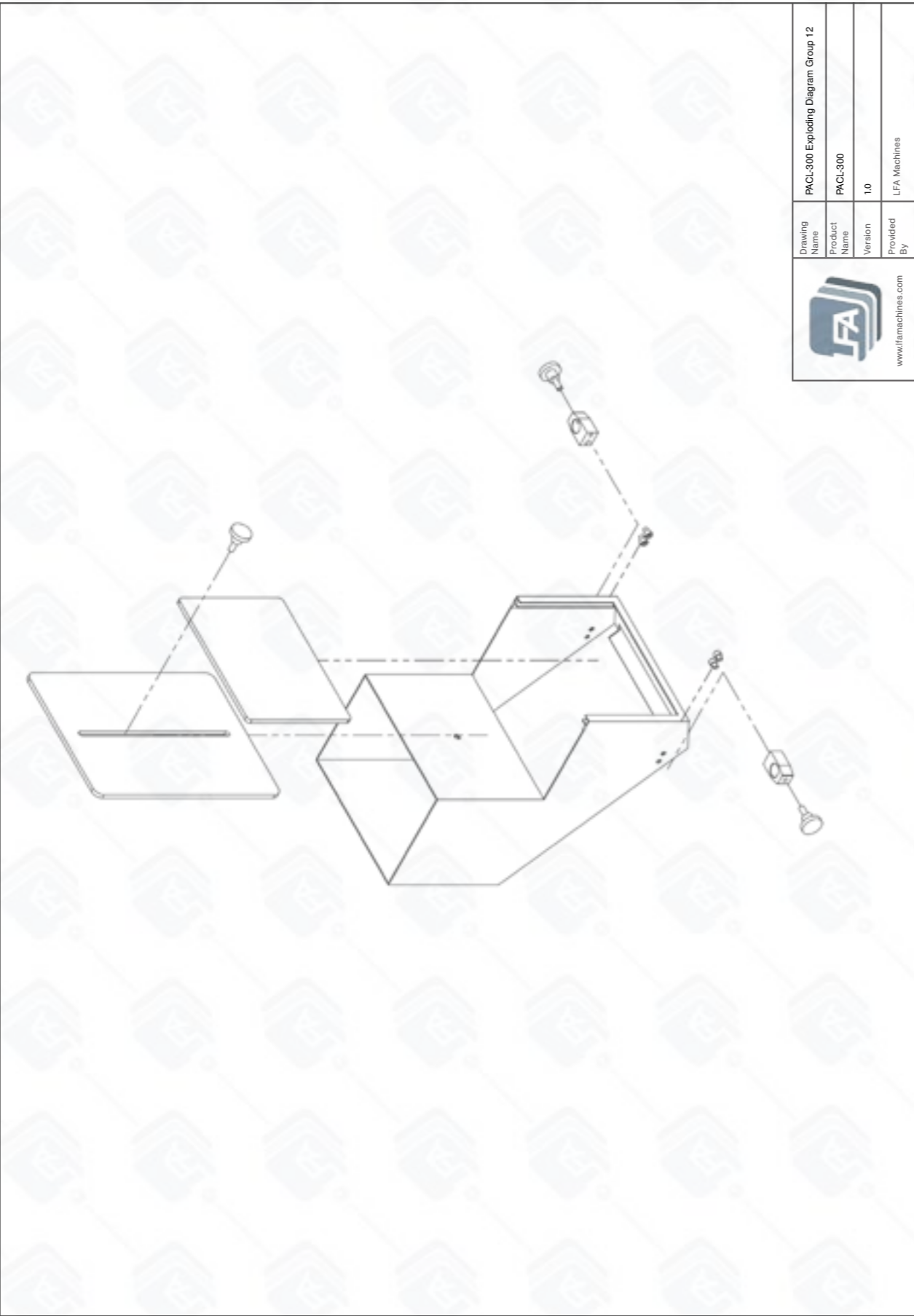
PACL-300® Exploding Diagram Group 10



PACL-300® Exploding Diagram Group 11



PACL-300® Exploding Diagram Group 12



PACL-300® Exploding Diagram Group 13





Resources

Helpful Links

Warranty

For information regarding the warranty policy of the PACL-300® and other LFA products, please visit <https://www.lfacapsulefillers.com/warranty>

LFA Website

In order to aid you in your mixing production, LFA Machines maintains a website that offers a breadth of useful information about the PACL-300® and other machines.

Visit the LFA homepage at <https://www.lfacapsulefillers.com>

LFA Machines YouTube Channel

Our YouTube videos provide you an opportunity to see how to use our machines, common troubleshooting tips, and other LFA products such as tablet presses and mixers. We regularly upload videos to give you a visual aid that will hopefully support you in your production efforts. To watch our videos, please visit <https://www.youtube.com/channel/UCwtbcwja77ai7vX2o34FUkQ>

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LFA Machines Social Media

Social media is a great way to keep yourself updated on new developments and exciting things happening at LFA Machines. The list below contains our current social media pages:

Twitter: @lfatabletpress

Facebook: <https://www.facebook.com/lfatabletpresses>

LinkedIn: <https://www.linkedin.com/company/lfa-machines-oxford-ltd/>



LFA MACHINES

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