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The Challenge Machinery Company
6125 Norton Center Drive
Norton Shores, MI 49441-6081 USA

ChallengeMachinery.com

Operator's Manual

CHAMP 185Pro

Programmable Paper Cutter

Serial Numbers:
185CH-A-191000 and up

Sold and Serviced by

F.185CH-PRO-O-A

March 2023

1.0 Introduction

THIS MANUAL is designed to help you get the most from your Challenge equipment. Keep this manual in a safe, convenient place for quick reference by operators and service personnel.



SAFETY ALERT! This symbol means **CAUTION: Personal safety instructions!** Pay special attention to the instructions in bold type. Personal injury may result if the precautions are not read and followed.

READ THIS MANUAL BEFORE OPERATING! Follow precautions and instructions given and you should have years of trouble-free operation. If after reading the manual questions still remain, contact your Authorized Challenge Dealer.

FOR PARTS AND SERVICE contact the Authorized Challenge Dealer from whom you purchased your machine. Use the illustrations and parts lists at the back of this manual to identify the correct parts needed. Always give the **SERIAL NUMBER** and **MODEL** of your machine to insure the correct parts are sent as soon as possible.

Take a few minutes right now to **RECORD YOUR MACHINE SERIAL NUMBER** in the space provided on the front cover of this manual. Also be sure to fill out the warranty card accompanying your machine and return it **DIRECTLY TO CHALLENGE**.

If you bought a used machine, it is important to have the following information on record at Challenge. Copy this page, fill in the information and send it care of The Challenge Service Department, 6125 Norton Center Drive, Norton Shores MI. 49441.

| | | | |
|--------------------|--------------|----------------|-----|
| CHALLENGE MODEL | CHAMP 185Pro | SERIAL NUMBER | |
| ATTN | | COMPANY | |
| ADDRESS | | | |
| CITY | | STATE/PROVINCE | ZIP |
| PHONE | | DATE INSTALLED | |
| DEALER NAME & CITY | | | |

*** WARRANTY INFORMATION ***

It is very important that you read and understand the conditions outlined in the *Warranty Information Sheet* attached to the outside of the shipping container of your machine.

The *Warranty Information Sheet* must be filled out completely and returned to THE CHALLENGE MACHINERY COMPANY in order for the warranty to be issued for this machine.

TABLE OF CONTENTS

| | |
|---|----|
| 1.0 Introduction | 2 |
| 2.0 Safety | 5 |
| 2.1 Precautions | 5 |
| 2.2 Power Lockout Procedure | 5 |
| 2.3 Warning Label Definitions | 6 |
| 3.0 Packing List | 8 |
| 4.0 Specifications | 9 |
| 5.0 Installation & Setup | 10 |
| 5.1 Inspecting Shipment | 10 |
| 5.2 Uncrating | 10 |
| 5.3 Hydraulic System Check | 13 |
| 5.4 Power Hook-Up | 14 |
| 6.0 Operation | 15 |
| 6.1 Control Console | 15 |
| 6.2 Power – Main Switch | 15 |
| 6.3 Operation Lockout Feature | 16 |
| 6.4 Start Up Procedure | 16 |
| 6.5 Jogging Aid | 17 |
| 6.6 Making a Cut (Machines with Electric Eyes) | 17 |
| 6.7 Making a Cut (Machines with Front Shield) | 17 |
| 6.8 Manual Clamping (Using the Optional Foot Treadle) | 18 |
| 6.9 Adjusting the Clamping Pressure | 18 |
| 6.10 False Clamp Plate | 18 |
| 6.11 Operating Tips | 20 |
| 7.0 Using the <i>Pro</i> Control System | 22 |
| 7.1 Display Power Sequence | 22 |
| 7.2 Home & Navigation Tab | 22 |
| 7.3 Cut Tab | 23 |
| 7.3.1 History Tab | 24 |
| 7.3.2 Repeat Tab | 25 |
| 7.3.3 Backgauge Slider Control | 26 |
| 7.3.4 Calculator | 26 |
| 7.4 Jobs Tab – SELECT Screen | 27 |
| 7.5 Jobs Tab – EDIT Screen | 29 |
| 7.5.1 Job Steps | 29 |
| 7.5.2 Backgauge Slider Control | 35 |
| 7.5.3 Number Pad | 35 |
| 7.5.4 Save Job | 36 |
| 7.6 Job Tabs – RUN Screen | 37 |
| 7.6.1 Job Step Panel | 37 |
| 7.6.2 Backgauge Slider Control | 38 |
| 7.6.3 Job List Tab | 39 |
| 7.6.4 Calculator Tab | 39 |
| 7.6.5 Cut Offsets | 40 |
| 7.7 Settings Tab | 41 |
| 7.7.1 General | 41 |
| 7.7.2 Knife Change | 42 |
| 7.7.3 Clock | 42 |
| 7.7.4 Service Info | 43 |
| 7.7.5 Cycles | 43 |
| 7.7.6 Display | 43 |
| 7.7.7 Advanced Settings | 44 |
| 8.0 Knife Installation/Changing | 45 |

1.0 Introduction

8.1 Knife Removal 45

8.2 Knife Installation 46

8.3 Knife Care Tips..... 49

 8.3.1 Knife Blade Life 49

 8.3.2 Cutting Stick 49

 8.3.3 Bevel Angle 49

 8.3.4 Helpful Suggestions 50

 8.3.5 Knife Care 50

9.0 Troubleshooting 51

 9.1 Troubleshooting Chart..... 51

10.0 Safety Systems Test..... 52

2.0 Safety

2.1 Precautions

- This machine is designed for one-person operation. Never operate the machine with more than one person.
- Safe use of this machine is the responsibility of the operator. Use good judgment and common sense when working with and around this machine.
- Read and understand all instructions thoroughly before using the machine. If questions remain, contact the dealer from which you purchased this machine. Failure to understand the operating instructions may result in personal injury.
- Only trained and authorized people should operate this machine.
- **DO NOT ALTER SAFETY GUARDS OR DEVICES.** They are for your protection. Severe personal injury may result.
- **Disconnect power and lock it out** before cleaning or performing maintenance. See Section 2.2 Power Lockout Procedure.
- Observe all caution labels on this machine.
- Be sure the cutter is properly grounded.
- Be sure there is sufficient power to operate the cutter properly.
- Observe all caution plates mounted on this cutter.
- Keep foreign objects off table and away from cutter blade.
- **BE EXTREMELY CAREFUL** when handling and changing the cutter knife. Severe lacerations or dismemberment could result from careless handling procedures.
- Keep the floor around the cutter free of trim, debris, oil and grease.
- When replacing hydraulic parts, loosen the connections slowly to release pressure. Never loosen connections with the machine running.
- If the cutter sounds or operates unusually, switch it off and consult the troubleshooting section of this manual. If the problem cannot be corrected, have it checked by a qualified service person.
- **CRUSH HAZARD**, keep hand and fingers from under the clamp when clamping paper. Use Jogging Aid to load paper, and use the backgauge to push paper out before unloading. **DO NOT REACH UNDER THE KNIFE AND CLAMP AREA!**

2.2 Power Lockout Procedure

For maximum safety, always disconnect power to the machine and lock it out according to the regulations and policies in place at the machine's location prior to performing any maintenance to the machine other than normal operation.



Figure 1 – Main Power Cord Disconnect and Cord Lock Out

2.3 Warning Label Definitions

The following warning labels are found at various locations on your machine. Read and understand the meaning of each symbol. If a label is lost from the machine, it should be replaced.



CAUTION ¡PRECAUCION!



CRUSH HAZARD-keep hands from under paper clamp and knife. Use hand tools to load paper, and backgage to push out trimmed stock.

PELIGRO DE APLASTE-no meta las manos bajo la prensa del papel o la cuchilla. Use herramientas de mano para poner papel en la prensa y el sujetador lateral para sacar el papel cortado.

DANGER D'ECRASEMENT- Gardez vos mains a l'ecart de la pince a papier et du couteau. Utilisez les outils pour charger le papler et la coulisseau pour pousser le matériel coupe.



DO NOT ALTER SAFETY MECHANISMS,they are for your protection.

NO ALTERAR LOS MECANISMOS DE SEGURIDAD,son para su proteccion.

NE PAS CHANGER LES MÉCANISMES DE SÉCURITÉ, ils sont pour votre protection.



DO NOT OPERATE WITH ANY GUARDS REMOVED!

¡NO TRABAJAR SIN ALGUNO DE LOS MECANISMOS DE SEGURIDAD!

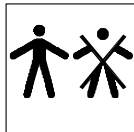
NE PAS FAIRE FONCTIONNER AVEC AUCUNES PROTECTIONS ENLEVEES!



DISCONNECT POWER before cleaning, servicing, adjusting, or lubricating.

DESCONECTAR LA CORRIENTE ELECTRICA antes de limpiar, ajustar o lubricar la maquina.

DÉBRANCHER LA PUISSANCE avant le nettoyage, l'entretien, l'ajustage, ou avant de lubrifier.



DO NOT OPERATE WITH MORE THAN ONE PERSON!

¡NO MANEJAR LA MAQUINA MAS DE UNA PERSONA!

NE PAS FAIRE FONCTIONNER AVEC PLUS D'UNE PERSONNE!



ATTENTION

S-1781-255

!OJO!



CAUTION This Este simbolo de alerta de seguridad significa ¡ OJO ! - INSTRUCCIONES DE SEGURIDAD PERSONAL. Lea las instrucciones porque se refieren a su seguridad personal. Fall de obedecer las instrucciones que siguen podria resultar en lesiones corporales.

- Esta maquina, junto con sus mecanismos de seguridad, esta disenada para ser manejada por
- **UNA SOLA PERSONA** a la vez. Jamas debe ser manejada por mas de una persona al mismo
- tiempo.
- La seguridad es la responsabilidad del operario que usa esta maquina.
- **LEA DETENIDAMENTE** el manual de instrucciones y las **PRECAUCIONES DE SEGURIDAD** antes de poner a funcionar la cortadora. Pidale a su supervisor una copia.
- El manejo de la guillotina debe estar exclusivamente a cargo de personal entrenado y autorizado para ello.
- **NO MODIFIQUE LOS MECANISMOS DE SEGURIDAD**, estan ahi para su proteccion no deben ni modificarse ni quitarse.
- **DESCONECTE LA CORRIENTE ELECTRICA** antes de proceder a hacerle servicio de limpieza, engrasar, o de hacer ajustes que no requieren corriente. Trabe el interruptor en la posicion **OFF** (apagado); vea "Procedimiento para cortar la corriente electrica" al pie de esta pagina.
- Eche llave a la guillotina y quite la llave cuando la maquina no esta en operacion; vea "Corriente electrica".
- Asegurese de que la guillotina este debidamente a tierra. Vea "Conexion de la fuerza electrica".
- Verifique el voltaje y asegurese de que este sea suficiente para el debido funcionamiento de la guillotina.
- Preste atencion a todas las placas con advertencias instaladas en esta guillotina.
- No permita que objetos estranos esten en la mesa o cerca de la cuchilla cortadora.
- **TENGA SUMO CUIDADO** al tocar y cambiar la cuchilla. Heridas severas y hasta desmembramiento pueden resultar del manejo sin cuidado o negligente.
- El suelo alrededor de la guillotina debe mantenerse despejado y libre de recortes, desperdicios, aceite y grasa.
- Al haber la necesidad de reemplazar partes hidraulicas, afloje todas las conexiones poco a poco para dejar escapar la presion. Jamas debe aflojarse conexiones mientras la maquina este
- andando.
- Si la guillotina empezara a sonar o trabajar diferentemente a lo acostumbrado, desconectela y consulte la seccion "Troubleshooting" (Reparador) de este manual. Si no es posible corregir el problema, llame a su servicio autorizado para que le examinen la maquina.
- **PELIGRO DE MACHUQUE** - Mantenga manos y dedos fuera de la agarradera mientras sujeta el papel. Use el calibrador trasero y su rueda de mano para empujar el papel cortado. **NO PONGA SUS MANOS BAJOLA CUCHILLA O AREA DE LA AGARRADERA.**
- **NO OPERE SIN LAS GUARDAS PROTECTORAS!**

¡ OJO ! PRECAUCION - Como proceder para desconectar la corriente electrica.

Para maxima seguridad durante ajustes y reparaciones de su maquina, verifique bien que el interruptor principal de control de corriente al cual la maquina esta conectada, este desconectado. El interruptor deba ser puesto en la posicion "OFF" (desconectado) y se debe poner un candado en la anilla. La llave del candado debe ser guardada por la persona que estara efectuando los trabajos de servicio o de reparacion en la guillotina.

Desconecte la corriente electrica antes de proceder a hacer cualquier ajuste o reparacion o de efectuar el engrase en cualquier maquina.

3.0 Packing List



| Part No. | Description | Qty. |
|------------------|---|------|
| – | CHAMP 185Pro Paper Cutter | 1 |
| 74012-1 | Knife, HSS (installed) | 1 |
| H-6918-608 | Knife Bolts, 3/8-16 x 1" Soc. Hd. (installed) | 5 |
| 8815 | Knife Washers (installed) | 5 |
| A-74050 | Knife Lifter Assembly | 1 |
| – | Knife Scabbard (blade holder) | 1 |
| 74055 | Cutting Stick (1 installed) | 3 |
| A-12608-2 | Jogging Aid | 1 |
| F.185CH-PRO-O-A | Operation Manual | 1 |
| Tool Kit: | | |
| 5064 | Cutting Stick Puller | 1 |
| W-130 | 3/16" Hex Key Wrench | 1 |
| W-137 | 5/32" Hex Key Wrench | 1 |
| W-141 | 1/8" Hex Key Wrench | 1 |
| W-164 | 5/16" T-Handle Hex Key Wrench | 1 |

4.0 Specifications

| Description | Inch Units | Metric Units |
|--|------------|--------------|
| Cutting Width | 18-1/2" | 470 mm |
| Clamp Opening | 3-1/4" | 82 mm |
| with False Clamp Plate: | 3" | 76 mm |
| Minimum Cut | 3/4" | 19 mm |
| with False Clamp Plate: | 1-3/4" | 45 mm |
| Table Space | | |
| Front: | 13-1/4" | 337 mm |
| Back (Maximum cut): | 19" | 482 mm |
| Dimensions | | |
| Overall Width | 33-1/2" | 851 mm |
| Overall Depth | 43-1/2" | 1105 mm |
| Overall Height | 56" | 1423 mm |
| Table Height | 36" | 914 mm |
| Approx. Net Weight | 775 lb | 352 kg |
| Approx. Shipping Weight | 920 lb | 417 kg |
| Electrical | | |
| 120 Volts AC, 60 HZ, 1 Phase, 14 Amps Recommended service size: 20 Amps Receptacle type: NEMA 5-20R Optional: 220 Volts AC, 60Hz, 1 Phase, 10 Amps Recommended service size: 20 Amps Receptacle type: NEMA 6-20R | | |

Challenge reserves the right to make changes to any product or specification without notice and without incurring responsibility to existing units.

5.0 Installation & Setup

5.1 Inspecting Shipment

This machine has been carefully packed to prevent damage during shipment. However, claims for damage or loss are the responsibility of the recipient. Inspect all shipments as soon as they are received. If there is any noticeable damage, note it on the freight bill. Visual and/or hidden damage must be reported to the claims department of the carrier within 15 days. Contact your dealer if you need any assistance. Check the contents of the box against the packing list on page 8. Make sure there are no missing items.

5.2 Uncrating

The CHAMP 185Pro weighs approximately 775 lb (342 kg). DO NOT risk personal injury or damage by attempting to move machinery with makeshift equipment or inadequate manpower. This machine is shipped on a wooden skid and enclosed in a protective, corrugated top. The skid is designed to allow the machine to be rolled off without any special lifting equipment. The machine is held in place by two, 2x4 braces lag bolted to the skid. All accessories are shipped inside of the machine.

Remove the carton by removing the nails or staples holding it to the skid and lift it straight up over the cutter. If you don't have the ceiling clearance to do this, carefully slit the carton down the side and then unwrap it from around the cutter.

Remove the plywood "ramp" and set it aside for now. Also remove any accessories and set them aside.

Remove the lower front cover from the CHAMP 185Pro. Then remove the three lag screws that hold the CHAMP 185Pro to the skid, as indicated in (Figure 2).

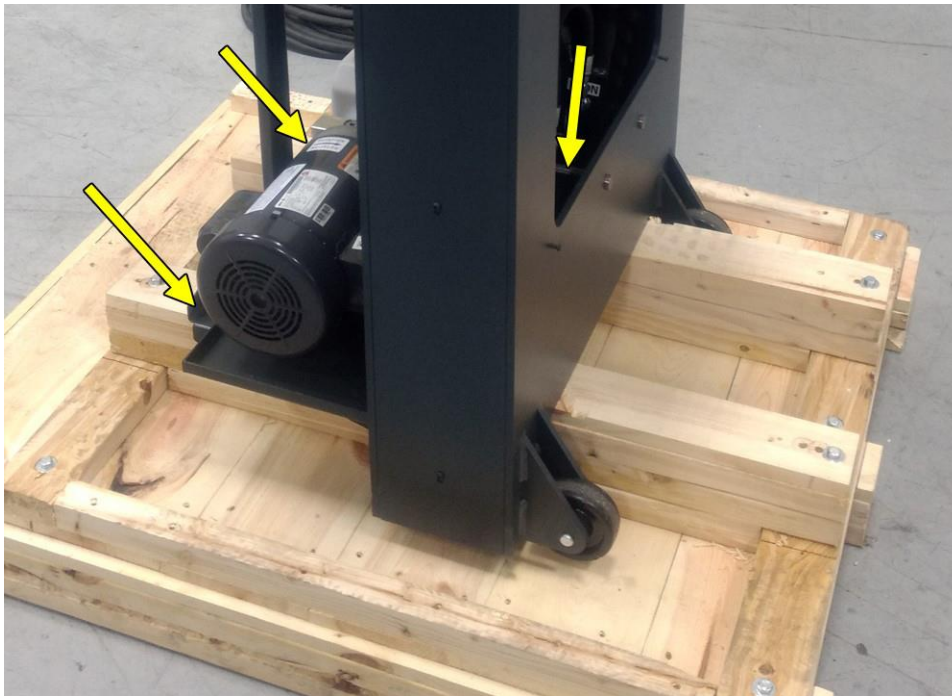


Figure 2

Remove the 4 lag screws from the top of the board stacks, and also the 3 lag screws located at the front of the skid, as indicated in (Figure 3 & Figure 4).

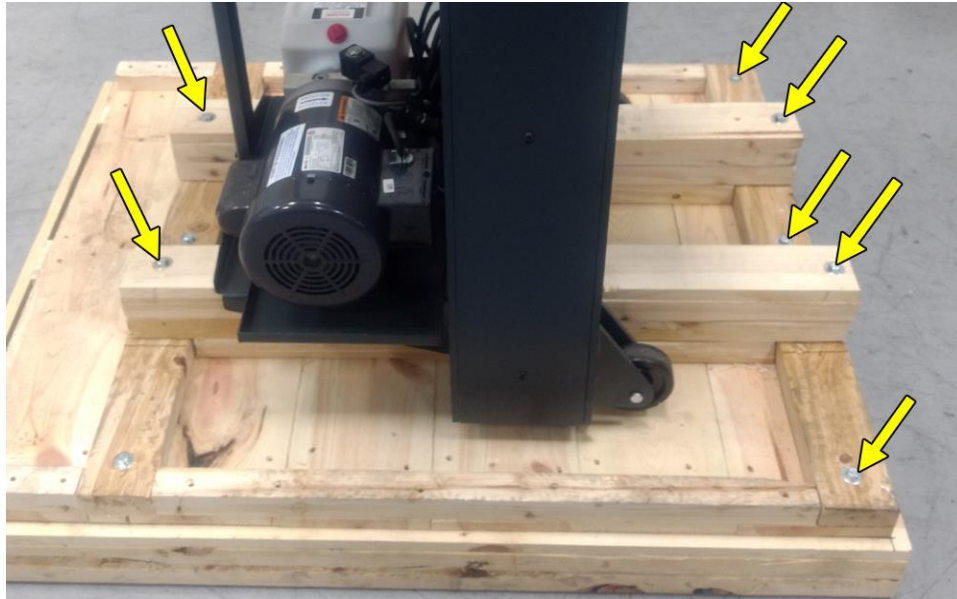


Figure 3

Carefully lean the CHAMP 185Pro forward slightly while having a second person pull out the two boards located at the top of the board stack from the rear side of the CHAMP 185, as shown in (Figure 4).

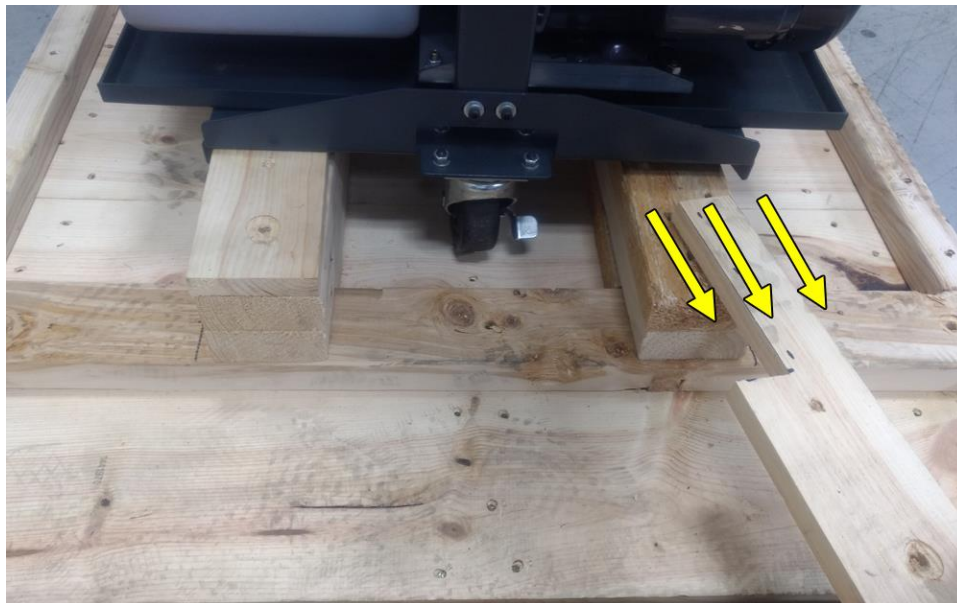


Figure 4

Now lean the CHAMP 185Pro rearward slightly and repeat the procedure for the top two boards at the front side of the machine.

5.0 Installation & Setup

Next, use the provided plywood board as a ramp by first placing it in position as shown in (Figure 5). Then secure the ramp to the skid using the provided nails. There are pre-drilled holes in the plywood board, indicated by red circles.

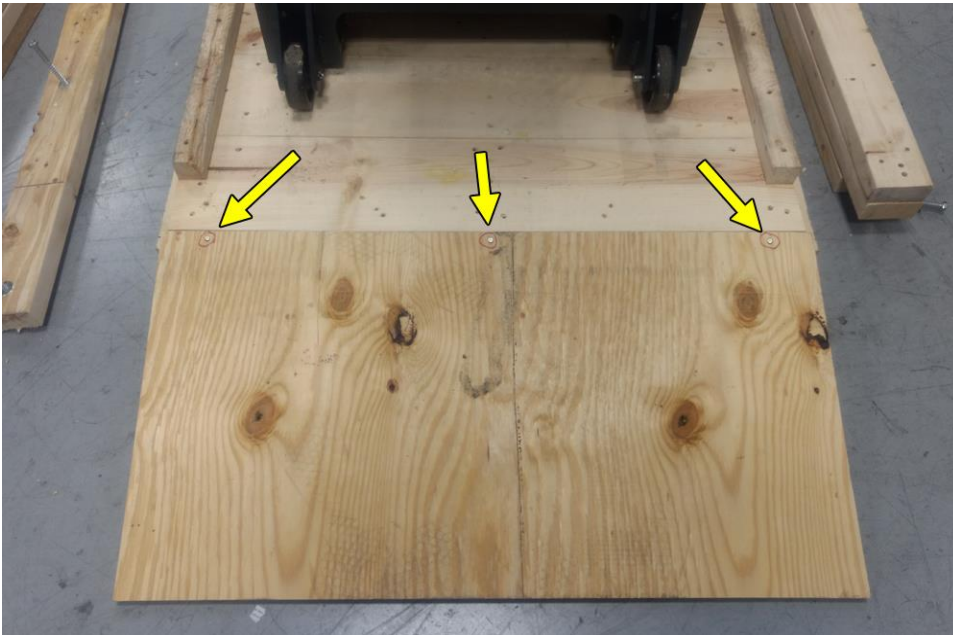


Figure 5

Make sure the casters are not locked and very carefully roll the machine down the ramp (Figure 6). **BE SURE TO USE 2 OR MORE PEOPLE TO DO THIS SAFELY!**

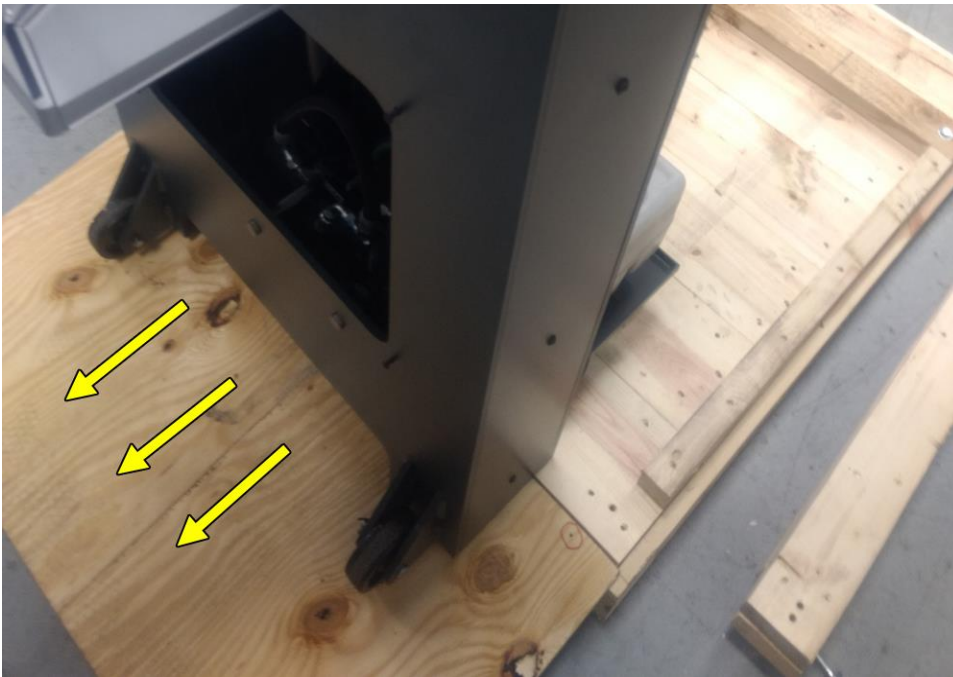


Figure 6

The CHAMP 185Pro may now be rolled into its final position. Replace the lower front cover.

5.3 Hydraulic System Check

The cutting/clamping mechanism of the CHAMP 185Pro is powered by a hydraulic system consisting of an electric motor coupled directly to a hydraulic pump.

The hydraulic reservoir holds approximately 0.7 gallons (2.6 liters) of with ISO VG 46 hydraulic fluid. It is filled at the factory but the level should be checked before operation. The tank is located at the rear of the machine. Fluid level should be approximately 1" from the top of the tank (Figure 7). Add fluid if necessary but avoid overfilling.

The hydraulic fluid should be checked weekly and changed **AT LEAST ONCE-A-YEAR** or after every 1,000 hours of operation.

NOTE: Use only ISO (International Standards Organization) Viscosity Grade 46, rust, oxidation, and foam inhibiting, non-detergent hydraulic oil with a minimum flash point of 150°F (65°C). **Oils other than the recommended type will cause seals, cups, and O-rings to deteriorate.** The proper hydraulic oil can be purchased in 5 gallon containers from your authorized Challenge Dealer using the Challenge part number: **S-1991-3**.

⚠ CAUTION NEVER USE Automatic transmission oil or brake fluid as a substitute! Oils other than the recommended type will cause seals, cups, and O-rings to deteriorate. Unsafe operations conditions will result.

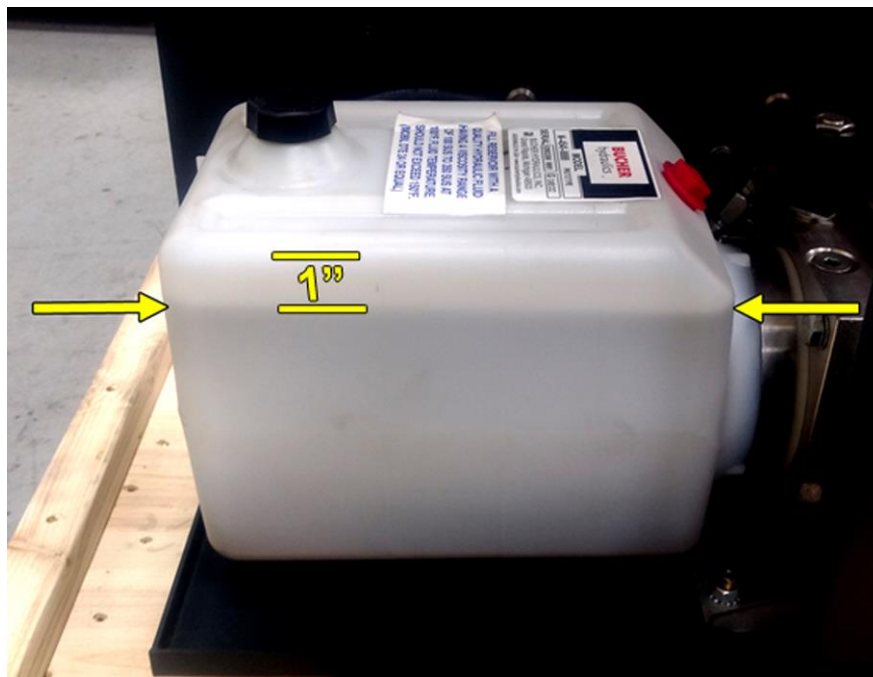


Figure 7 – Hydraulic Fluid Level

5.4 Power Hook-Up

⚠ CAUTION **SHOCK HAZARD! NEVER CUT THE GROUND TERMINAL** from a three-prong plug to fit a two-prong socket. Possible shock could cause personal injury or death. Hire a qualified electrician to provide a power source that meets electrical requirements and all local electrical codes.

It is the customer's responsibility to provide a properly wired and properly grounded circuit and receptacle that meet the power requirements specified on the nameplate of this machine as well as all local code regulations. Have a qualified electrician perform any work that is necessary to accomplish this.

For best performance, it is recommended that a **dedicated circuit** be used whenever possible to supply power to this machine. Sharing a circuit with other equipment may cause the circuit to be overloaded, potentially causing unusual or erratic behavior of the machine.

The CHAMP 185Pro comes standard for use on a 120 Volts AC, 60 Hz, 20 Amp circuit. It requires the use of a NEMA 5-20R receptacle.

The optional 220V model is rated for use on a 220 Volts AC, 60 Hz, 20 Amp circuit. It requires a NEMA 6-20R receptacle.

Connect the power cord into a grounded, 3-prong receptacle only!

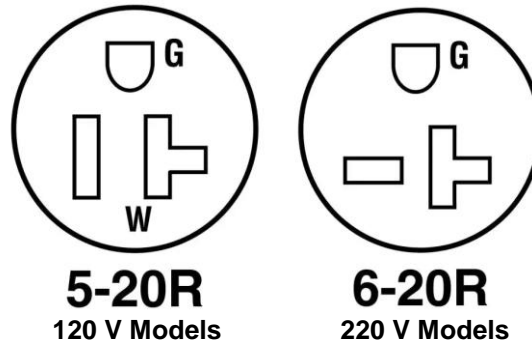


Figure 8 – NEMA Receptacle Types

6.0 Operation

⚠ CAUTION

IMPORTANT: DO NOT ATTEMPT TO OPERATE THE CHAMP 185Pro UNTIL YOU HAVE THOROUGHLY READ AND UNDERSTAND ALL OF THE FOLLOWING INSTRUCTIONS. CALL YOUR AUTHORIZED CHALLENGE DEALER IF YOU STILL HAVE ANY QUESTIONS.

6.1 Control Console

The control console includes a main power switch, USB port, touch screen display, and backgauge micro-adjustment wheel.



Figure 9 – Pro Control Console

6.2 Power – Main Switch

Power is brought to the machine when the main power switch (Figure 10) is turned to the “ON” position. The display and line lights will turn on at this time. The hydraulic motor will not be activated until a cut cycle is initiated, and it will shut off after the completion of the cut cycle.



Figure 10 – Main Power Switch

The screen and line lights will go to sleep after a certain amount of time of inactivity. The sleep delay time can be changed in the Setup tab (see Section 7.7.1 General). To wake up the machine, press any spot on the touch screen or break the eye beams (or raise the front shield if equipped).

6.3 Operation Lockout Feature

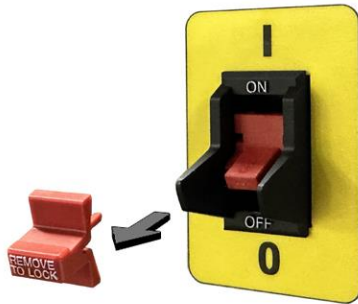


Figure 11 – Main Switch Lockout

The main switch of the CHAMP 185 is equipped with a removable actuator that when removed will prevent the CHAMP 185 from being operated (Figure 11). To remove the actuator and lock out the machine, simply pull the red actuator tab away from the machine until it becomes free. To replace the actuator, align it in the proper position and press firmly back in place.

CAUTION Removing the actuator tab from the power switch does NOT lock out power going into the machine. To properly lock out power to the entire machine, remove the main power cord from the outlet and lock it out (see Section 2.2 Power Lockout Procedure).

6.4 Start Up Procedure

After start up initialization, the screen will display the HOME  screen as seen in Figure 12.



Figure 12 – Start Up

Press the button labeled **Touch to Preset**. This will start up the backgauge positioning routine and calibrate the backgauge to its default starting position. Once presetting is complete, the CHAMP 185Pro is ready to make a cut. See Section 7.0 Using the *Pro Control System* for complete instructions on how to use the touch screen control system.

NOTE: If the knife and/or clamp are not all the way up when the preset button is pressed, the screen will prompt the user to raise them by pressing both cut buttons. The electric eyes must be clear (or front shield down if equipped) in order for this to be completed.

6.5 Jogging Aid



CAUTION

Always remove the jogging aid from the table before making a cut.

A jogging aid is included as standard equipment with the CHAMP 185Pro. This tool allows the operator to load and align paper without the need to place hands or arms under the knife or clamp.

Load the paper against the backgauge, then tap the pile with the jogging aid to align the sheets and press them tightly to the backgauge (Figure 13).

When finished, always remove the jogging aid from the table before making a cut.



Figure 13 – Jogging Aid

6.6 Making a Cut (Machines with Electric Eyes)

With the power on and the backgauge preset, send the backgauge to the desired location. Using the jogging aid as described in Section 6.5 Jogging Aid, position the stack of paper tightly against the backgauge. It is usually best to position the stack in the center of the table, but if it is desired to place it against either one of the side guides, use the jogging aid to do this as well. As always, remove the jogging aid from the table before cutting.

NOTE: When cutting business cards or narrow strips of paper, place stacks of equal height on opposite sides of the table to provide better and more even clamping.

To make a cut, press and hold both the left and right cut buttons at the same time. Continue holding both cut buttons until the knife reaches the table completely. Release the cut buttons to return the knife and clamp to the “up” position.

NOTE: If at any time during a cut cycle one or both cut buttons is released, or if the electric eyes become obstructed, the knife and clamp will immediately return to the “up” position.

See Section 6.11 Operating Tips, page 20 for more information about how to get the best results cutting paper using your CHAMP 185Pro paper cutter.

6.7 Making a Cut (Machines with Front Shield)

With the power on and the backgauge preset, send the backgauge to the desired location. Open the front shield, then using the jogging aid as described in Section 6.5 Jogging Aid, position the stack of

6.0 Operation

paper tightly against the backgauge. It is usually best to position the stack in the center of the table, but if it is desired to place it against either one of the side guides, use the jogging aid to do this as well. As always, remove the jogging aid from the table before cutting.

NOTE: When cutting business cards or narrow strips of paper, place stacks of equal height on opposite sides of the table to provide better and more even clamping.

To make a cut, press and hold both the left and right cut buttons at the same time. Continue holding both cut buttons until the knife reaches the table completely. Release the cut buttons to return the knife and clamp to the “up” position.

NOTE: If at any time during a cut cycle one or both cut buttons is released, or if the front shield raised, the knife and clamp will immediately return to the “up” position.

In order for the CHAMP 185Pro to detect proper function of the front shield, the front shield must be opened and closed before each cut cycle. **The CHAMP 185Pro will not make two consecutive cut cycles unless the front shield has been opened and closed at least once between cycles.**

See Section 6.11 Operating Tips, page 20 for more information about how to get the best results cutting paper using your CHAMP 185Pro paper cutter.

6.8 Manual Clamping (Using the Optional Foot Treadle)

The CHAMP 185Pro is available with an optional foot treadle, which if equipped allows the operator to manually clamp paper before beginning a cut cycle. To use this feature, press down on the foot treadle until the clamp comes down on the paper. A cut cycle can be performed while the clamp is being held down with the foot treadle. To raise the clamp, slowly let the treadle rise to its upper position.

6.9 Adjusting the Clamping Pressure

All CHAMP 185Pro's are equipped with adjustable clamping pressure. This feature allows an operator to adjust the clamp pressure higher or lower depending on the type of paper being cut. To use this feature, start by checking the current clamp pressure setting. This is accomplished by performing a cut cycle and reading the gauge on the front of the machine AFTER the clamp has reached the table (or pile) and WHILE the knife is coming down. It should read somewhere between 400 and 1,000 psi. To adjust the setting, locate the clamp pressure adjustment knob on the lower front of the machine, loosen the locking wheel behind it, then make an adjustment by turning the adjustment knob – clockwise to increase pressure, or counter-clockwise to decrease pressure. Check the pressure setting after each adjustment by making a cut cycle and reading the gauge as described earlier. Always keep the clamp pressure set between 400 and 1,000 psi. When finished, tighten the locking wheel.

6.10 False Clamp Plate

A false clamp plate is an optional accessory that can be installed on the bottom surface of the clamp in order to prevent clamping indentations from occurring on the top sheets of certain paper stock.

To install:

1. Start with the power ON and the knife and clamp in the up position. Click the settings tab and turn on “Knife Adjust Mode”.

- Send the clamp about half way down by pressing both cut buttons then releasing them when the clamp is part way down (Figure 14).



Figure 14

- Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
- Position the false clamp plate under the clamp such that the locator pins are more toward the rear of the machine and the removal slots are facing forward. Lift the false clamp plate up and into the clamp, guiding the locator pins into the holes in the bottom of the clamp. Once the false clamp plate is completely in position, strong magnets in the clamp will keep it in place.
- Switch the power ON and press the “Preset” button. Click the settings tab and turn on “Knife Adjust Mode”.
- Begin a cut cycle and immediately after the clamp reaches the table release the cut buttons. The clamp should now be down and the knife still near the top. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
- Using a 1/8” Hex key, tighten the (3) setscrews located in the lower front face of the clamp (Figure 15).

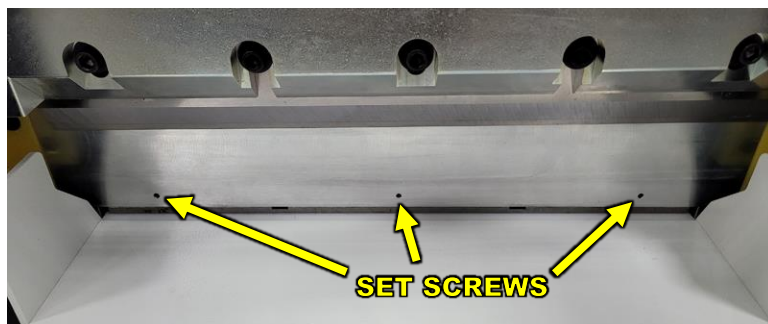


Figure 15

NOTE: The CHAMP 185Pro automatically detects when the false clamp plate is installed, and this will be indicated on the display at the top of the navigation bar (Figure 16). Also, whenever the false clamp plate is installed, the backgauge will be prevented from moving to a position less than 1.75” (45 mm).



Figure 16 – False Clamp Plate Status Indicator

To remove the false clamp plate:

1. Switch the power ON and press the “Preset” button. Click the settings tab and turn on “Knife Adjust Mode”.
2. Begin a cut cycle and immediately after the clamp reaches the table release the cut buttons. The clamp should now be down and the knife still near the top. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
3. Using a 1/8” Hex key, loosen the (3) setscrews located in the lower front face of the clamp a few turns each (Figure 15).
4. Exit the Settings screen and perform a normal cut cycle to raise the knife and clamp to the up position. **NOTE:** Magnets in the clamp will continue to keep the false clamp plate attached to the clamp.
5. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
6. Place two stacks of paper approximately 2.5” high under the clamp, one on each side of the table.
7. Locate the two slots in the false clamp plate, then using a flat-bladed screwdriver or similar tool (Figure 17), pop the false clamp plate off from the bottom surface of the clamp and onto the stacks of paper.

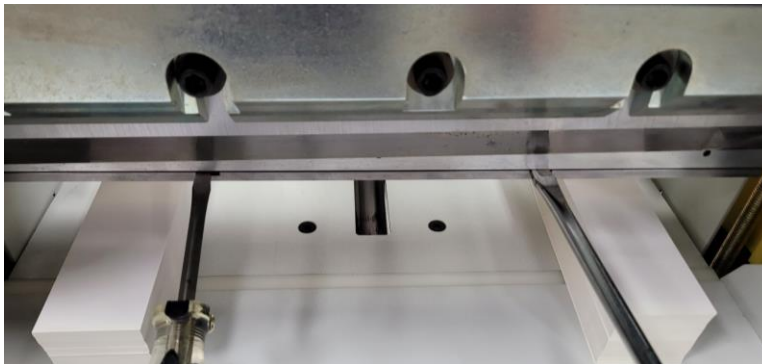


Figure 17

8. Finally, remove the false clamp plate, stacks of paper, and all other items that remain on the table.

The CHAMP 185Pro automatically detects when the false clamp plate has been removed and will allow the backgauge to move to less than 1.75” (45 mm), all the way down to 0.75” (19 mm).

6.11 Operating Tips

- For best results, it is very important to have a sharp blade in the cutter. A dull blade will cause poor quality cuts, may pull or draw the paper and cause uneven cutting, or may not cut through an entire pile.

- It is always best to bring the backgauge to the desired position by bringing it forward for the final movement rather than backward. The CHAMP 185Pro does this automatically whenever possible and displays the backgauge position in GREEN to indicate as such (versus YELLOW when last moved backward). Moving the backgauge forward eliminates even the smallest amount of slack in the leadscrew and backgauge components, resulting in the most accurate cut dimension possible.
- Carefully lay out each sheet before cutting. Find the best cut pattern that gives the most pieces out of the sheet. If the sheet will be folded, be sure the grain of the paper is running in the same direction as the fold to avoid getting a rough edge on the fold.

7.0 Using the *Pro* Control System

The Challenge *Pro* touch screen control system provides a feature-rich, highly responsive, intuitive user interface for fast and easy machine control. It is loaded with features that range from automatic backgauge positioning to customizable jobs for cutting. The next sections will describe all of these features in detail and explain how to use them to maximize machine efficiency.

7.1 Display Power Sequence

When the machine is first powered on, the control system will initialize all of the features required to run the machine. If there are any active alerts or error messages (such as the knife needing to be changed) they will be displayed at this time. Once the machine has completed its initialization, the display will show the Home screen as described next.

7.2 Home & Navigation Tab


After all initialization routines have completed, the screen will display the HOME  screen as seen in Figure 18.



Figure 18 – Home Screen

The *Pro* user interface is designed for ease of navigation and intuitive features/controls. At the top of the screen is the navigation bar, which contains four main tabs/windows to choose from. These tabs are:



NOTE: The machine must be preset before the CUT and JOBS tabs can be selected.

At the HOME screen, begin by pressing the large blue button labeled **Touch to Preset**. This will begin a backgauge “preset” process that calibrates it to its displayed position and also bring it to its default location. Once presetting is complete, the system will automatically switch tabs to the CUT



 tab screen, and the navigation bar will change to like what is shown below:



Figure 19 – Navigation Bar

You can return to the HOME screen at any time by clicking on the HOME  tab. If the preset has been completed it will display the message “Preset Complete” and also the current date and time. The date and time can be adjusted in the SETTINGS tab.

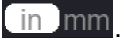
The large numbers on the left side of the navigation bar show the current position of the backgauge. This is sometimes referred to the “cut dimension” because this is the dimension that paper placed up against the backgauge would be cut at.

The backgauge position will be displayed in one of three possible colors:

A **green** backgauge position color indicates the last movement of the backgauge was forward (i.e. towards the operator) and therefore the position is the most accurate.

A **yellow** backgauge color indicates the last movement of the backgauge was backwards (away from the operator) and therefore the accuracy of the backgauge could be off slightly due to any excess play or movement in the backgauge leadscrew drive system.

A **red** backgauge position indicates the backgauge is currently presetting and has no indication of its true position until presetting is complete. The backgauge position will turn green or yellow once a preset has been successfully completed.

Next to the backgauge position is displayed the units of measure. The units of measure can be easily changed between inches and millimeters at any time by pressing the Unit Toggle Button . Pressing the button will toggle the units displayed for the backgauge position, as well as any measurement displayed on the screen or being used currently (such as the History panel, Step & Repeat panel, programmed jobs, etc.). **NOTE:** In some instances there may be slight rounding variations due to precision differences between units.

Above the units of measure is the false clamp plate (FCP) status indicator. The CHAMP 185Pro automatically detects if an optional false clamp plate is installed. The status indicator will show ON in green when it is installed or OFF in red when it is not. The system automatically limits the SEND range accordingly, see Section 6.10 False Clamp Plate for more details.

7.3 Cut Tab


The CUT  tab screen is used for making individual cuts and performing basic tasks. The CUT tab screen is shown in Figure 20.



Figure 20 – Cut Tab Screen

There are three main display areas within the CUT tab screen: The History/Repeat tabs, the Backgauge Slider Control, and the Calculator/Send panel.

7.3.1 History Tab



Figure 21 – History Tab

Any time a cut is performed while in the CUT tab, the position of the cut is saved to the top of the list in the History tab. The History tab can contain up to 20 cuts and will automatically push off the oldest cut when it becomes full. Cuts in the list can be selected by clicking on them (the selected row will turn blue). Clicking a selected (blue) row will copy that value to the calculator's text field.

The list of cut values can be scrolled using your finger or with the up/down arrows at the right. Values can be individually deleted with the **X** button. All entries can be cleared with the **Clear All** button.

Jobs can be created directly from the list of cuts in the History tab with the **Make Job** button. The keyboard will appear once the "Make Job" button is pressed. Type a name for the job and proceed to the Job Edit screen. More on the job edit process can be found in the Jobs Tab – E section.

7.3.2 Repeat Tab

The Repeat tab can be opened by clicking the **Repeat** tab as seen in Figure 22. This feature is used to automatically and repeatedly move the backgauge forward a fixed amount or amounts every time a cut is performed. This process is commonly referred to as “Step and Repeat”.

Figure 22 – Repeat Tab

To begin, insert a “Start Size” into the top field by clicking in the field and typing a desired value using the number keys. This will be the starting position that the backgauge will move to when the process is first run.

Next, enter one or two step lengths. The backgauge will decrease its current position after every cut by these two values, alternating between the two. For example:

Start Size = 10” Step Length 1 = 1” Step Length 2 = 0.5”

When the **Run/Resume** button is pressed, the backgauge will move to the Start Size. In the example above, the backgauge would go to 10”. After a cut is made or the “↓” button is clicked, the backgauge position will decrease by the value of Step Length 1, or in the case of the example, the backgauge would move to 9” since Step Length 1 is set to 1”. When another cut is performed or the “↓” button is clicked, the backgauge position will decrease by the value of Step Length 2. In the example the backgauge would move to 8.5” since it was at 9” and Step Length 2 is 0.5”. After the next cut the backgauge position would decrease by the value of Step Length 1 again. These values will alternate until the process is stopped or the backgauge reaches the front limit, in which case it will automatically move back to the Start Size dimension. If only one step length is required, then Step Length 2 can be left blank and the backgauge position will be decreased by the value of Step Length 1 repeatedly.

The Step Count tracks how many steps were performed. The counter value can be reset at any time by clicking the **Clear** button.

Step and Repeat will be paused if the backgauge is manually moved (with the slider), the TAB is changed, or a send is performed. Pressing the **Run/Resume** button will move the backgauge to the position it left off at, as long as the start size or step lengths haven’t changed.

The process can be ended at any time by clicking the **Exit Step & Repeat** button.

7.3.3 Backgauge Slider Control

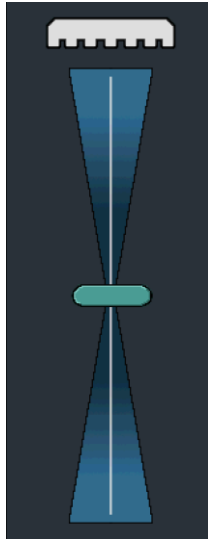


Figure 23 – Backgauge Slider Control

The Backgauge Slider Control is used to manually move the backgauge as desired. Dragging the slider up or touching the area above the center of the slider will move the backgauge backwards (away from the operator). Moving the slider down or touching below the center will bring the backgauge forward (toward the operator). The further the slider is from the center, the faster the backgauge will move. This allows for both large and quick adjustments as well as small and precise ones. Releasing your finger from the backgauge slider will cause the backgauge to stop moving immediately. Using the backgauge slider during any process the backgauge may be doing, like the execution of a “Send” command, will interrupt or stop the process.

7.3.4 Calculator



Figure 24 – Calculator

The Calculator is a key feature to the *Pro* series cutters. It allows for fast and precise backgauge positioning with just a few strokes. Values can be inserted into the calculator by pressing keys on the number pad. The cursor's position can be changed by tapping the screen at the desired spot in the text field.

Values in the Calculator's text field can also be selected by dragging your finger over the text/numbers. If an item or number is inserted into the text field while text is selected, the selected text will be replaced by the insertion. Clicking the backspace button will also delete the selected text. Individual button functionalities are as follows:



Clear – Removes all items in the calculator's text field



Backspace – Removes a single character to the left of the cursor. If held, repeatedly removes characters to the left of the cursor.



Add – Inserts the '+' (addition) operation



Subtract – Inserts the '-' (subtraction) operation



Multiply – Inserts the 'x' (multiplication) operation



Divide – Inserts the '/' (division) operation



Push Out – Causes the backgauge to move forward to deliver paper out from under the clamp, after which it returns to its previous position.



Parenthesis – Inserts the '(' or ')' characters to group calculations.



Send – First calculates a result if an equation exists in the text box, then moves the backgauge to the position shown in the text box.


The other buttons in the Calculator are standard to that of a normal number pad. The '=' symbol will calculate the results of the text field but will not move the backgauge.

In the History tab, values from the list can be inserted directly into the Calculator by clicking the highlighted value.

The current backgauge position (displayed on the navigation bar at the top of the screen) can also be copied directly to the Calculator by first clicking on the Calculator's text field to activate the cursor, then clicking the backgauge position on the navigation bar.

Another shortcut is to press any of the mathematic operations while the Calculator is empty – this will automatically copy the current backgauge position into the Calculator first, followed by the operator.

7.4 Jobs Tab – SELECT Screen

The CHAMP 185Pro is equipped with powerful tools that streamline the process of creating and running programmed cut routines, or "jobs". All job-related tasks are accomplished in the Jobs 

7.0 Using the Pro Control System

tab. There are three different screens that are utilized in the Job tab: The Job SELECT screen, the Job EDIT screen, and the Job RUN screen.

The Job SELECT screen is the one displayed when going to the Jobs tab for the first time. Figure 25 shows an example of the Job SELECT screen.



Figure 25 – Job SELECT Screen

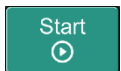
The Job SELECT screen contains action buttons on the left half of the screen and a job list on the right. The job list can be scrolled up and down by dragging your finger on the list. The list can display as many as 100 jobs. The list in Figure 25 contains a single job called *My Job*. *My Job* was last modified on 2/24/2022 and has been run (to completion) 0 times as indicated by “Uses”. To select a job, simply click on it. The selected job will turn blue and the buttons on the left half of the screen will become enabled. Functionality of the buttons on the Job SELECT screen are as follows:



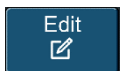
New Job – Creates a new job. This will cause the keyboard to appear and prompt the user to enter the name for a new job. The job can be renamed in the edit screen later if desired. Once the job name is entered, the screen will automatically transition to the Job EDIT screen.



Delete – Removes (deletes) the selected job from memory. This process cannot be undone so it may prompt the user to confirm.



Start – Starts the selected job. This will open the Job RUN screen and the backgauge will move to the first step in the job if it is a SEND step.



Edit – Edits the selected job. This will open the Job EDIT screen where the user can make any desired changes to the job.



Copy to USB – Copies the selected job to a USB memory storage device (if one is inserted). When the job is copied it will append the job name with a number. The job can be renamed in the Job EDIT screen later if desired.



Copy to FLASH – Copies the selected job to the machine’s flash memory. When the job is copied it will append its name with a number. The job can be renamed in the Job EDIT screen later if desired.

To make finding jobs in the list easier, the Job SELECT screen features a drop-down filter above the job list. Users may select a filter option to organize the job list, such as alphabetical sort.

Below the drop-down filter are two buttons called **USB** and **MACHINE** (Figure 26).



Figure 26

In Figure 26 the **MACHINE** button is recessed, indicating jobs shown in the list are being loaded from the machine's built-in flash memory. Clicking the **USB** button will populate the list with jobs found in the USB memory storage device. The job list cannot display both machine flash and USB jobs at the same time.


7.5 Jobs Tab – EDIT Screen

The Job EDIT screen Figure 27 is divided into 3 sections – a list of *Job Steps*, the *Backgauge Slider Control*, and the *Number pad*.



Figure 27 – Job EDIT Screen

7.5.1 Job Steps

The *Job Steps* section at the far left side of the Job EDIT screen contains the list of job steps within the current job. A job can contain up to 99 steps. At the top of the *Job Steps* section is the name of the job being edited. The name of the job being can be changed any time by clicking the pencil (or edit)  icon to the left of the job name. Changing the job name will not be saved permanently until the job itself is saved (as described later).

At the bottom of the *Job Steps* section is the Job Step Control Menu (Figure 28).



Figure 28 – Job List Control Menu

The buttons on the Job Step Control Menu are defined as follows:



SEND Step – Sets the selected job step as a SEND type of step.



PROMPT Step – Sets the selected job step as a PROMPT type of step.



REPEAT Step – Sets the selected job step as a REPEAT type of step.



Insert New Step – Inserts a new, blank step below the selected step.



Delete Step – Deletes the selected step.



Copy Step – Inserts a copy of the selected step below the selected step.

Each step in a job must be one of three types: SEND, PROMPT, or REPEAT. The first three buttons in the Job Step Control Menu can be used to toggle between the three types. The three types are described below:

1. SEND Step

This is the primary step type for all jobs. SEND steps are used to send the backgauge to a specific, defined position. To create a SEND step, simply insert a new step. By default, all new steps start out as SEND steps. You can also select an existing step that is not a SEND step and click the **SEND**





Step  button in the Control Menu. Figure 29 shows an example of a SEND step with a backgauge position of 5.000” entered.











Figure 29 – SEND Step



The leftmost number on all step lines is the job step number.




The next part of a SEND step is the positioning or send “type”. SEND steps can be either *absolute* () or *relative* ( or ) send type.


An *absolute* send type means the backgauge will go to the exact value shown in the text field. In the case of Figure 29, the SEND step is set to an absolute value of 5.000”.

A *relative* send type means the backgauge will move from its previous position by either adding () or subtracting () the value of the step from the previous backgauge position value. So for example, if the backgauge was previously at 10.000" and the job encounters a SEND step of [ 1.000] the backgauge would move to 9.000". The positioning type can be changed by clicking on the positioning icon (  ) and cycling through the choices. As a quick tip, the positioning type will automatically set as relative if the  or  button is pressed on the *Number Pad* before entering a value.

NOTE: All jobs must contain at least 1 *absolute* SEND step before there can be any *relative* SEND steps.

Next to the positioning type is the value of the SEND step. Values can be entered using several different ways. They can be entered directly by using the *Number Pad* on the right of the screen. Or, simple addition and subtraction can be done inside the value field using the  and  buttons on the *Number Pad*. Click the equals "=" button or the **ENTER** button on the *Number pad* to calculate and submit the result (inserting a new step entirely will also do this automatically). Another method is to enter the current backgauge position by clicking on the displayed position in the Navigation Tab. This will automatically insert the value into the selected step.

Finally, the rightmost part of the SEND step contains the *pushout* control setting. *Pushout* control is by default set to auto , but it can also be set to FORCE a pushout  or PREVENT a pushout . During the running of a job, the *pushout* action happens during the transition to the next step.

Setting a step to auto  means the system will decide if a pushout is necessary based on the common uses for pushouts. Normally a pushout DOES occur when the backgauge will be moving backwards for the upcoming step. This allows paper to be pushed out toward the operator before the backgauge moves back to the next position. Pushouts normally DO NOT occur when the backgauge will be moving forward for the upcoming step. If either of these cases are not desired, use the *pushout* control setting on the step to either "force a pushout" or "prevent a pushout" prior to the next step to follow.

2. PROMPT step

A PROMPT step is used to display messages to the operator while they are running a job. To create a PROMPT step, insert a new step into the job (or select an existing step) and click the **PROMPT**



Step  button in the Control Menu. An example of a PROMPT step is shown in Figure 30.



Figure 30 – PROMPT Step

To insert text into the PROMPT step, click the pencil  symbol on the step line. A window will open with available prompt selections (see Figure 31).

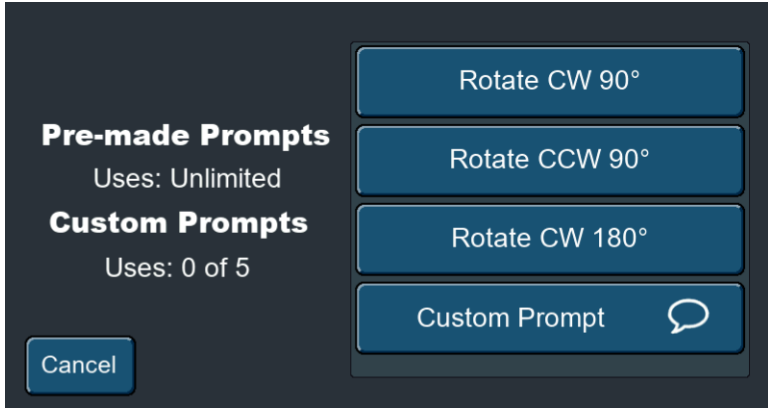


Figure 31 – Prompts

The system allows for the user to use as many pre-made prompts as desired. The pre-made prompts are “Rotate CW 90°”, “Rotate CCW 90°”, and “Rotate CW 180°”. These prompts instruct an operator to rotate the paper stock at a certain point in the job. To use a pre-made prompt, simply click on one of the 3 options in the prompt list.

Clicking the **Custom Prompt** button will allow the user to create a custom prompt using the keyboard. Each job may contain up to 5 custom prompts.

REPEAT Step

A REPEAT step is used to loop through a group of 1 or more steps, repeating the steps a specified number of times. Repeating steps is particularly useful if a job has repetitive aspects that can be simplified into a loop, thereby simplifying the creation of the job and reducing the number of entered steps.

To create a REPEAT step, insert a new step into the job (or select an existing step) and click the




REPEAT Step  button in the Control Menu. Figure 32 shows an example of a newly-created REPEAT step.



Figure 32 – REPEAT Step

All REPEAT steps have two main elements: The number of **steps**, and the number of **loops**.

The number of steps (), refers to the total number of steps in the group that will be repeated. Each step included in the repeat loop will be slightly indented to help visualize the loop-block. A REPEAT step must have at least 1 step.

The number of loops (), refers to how many times the repeated loop is executed. If the number of loops is 1, the indented loop will only run through 1 time, after which it will continue with any job steps that follow the loop. If the number of loops is 2, the entire block of steps will run once, then return to the first step in the block to repeat the steps a second time. The maximum allowed number of loops is 99.




A red exclamation symbol  appears on any job step that is not yet complete. For example, in Figure 32, the number of steps, the number of repeats (or loops), and the values of the repeated steps all need to be entered before the job step will be considered complete and able to run.

Figure 33 shows an example job that calls for 10 cuts to be made at 1" apart. Therefore, a "1" is keyed in for the number of steps  in the loop, and "10" for the number of loops .

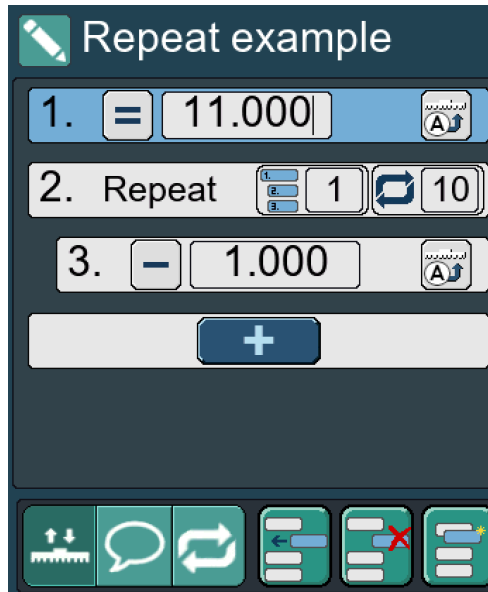


Figure 33

The CHAMP 185Pro also allows jobs to contain nested repeats, which are REPEAT steps within a REPEAT step. Nested repeats give the operator the option to condense complicated and long jobs into much shorter and simpler ones. Figure 34 shows an example of a job containing nested repeats.



Figure 34 – Nested REPEAT

For the job shown in Figure 34, step number 2 is a top level REPEAT step that loops 2 steps 3 times. Inside of the top level repeat there are two more “nested” REPEAT steps. The first nested repeat (shown as step number 3) loops 1 step, 2 times. The second nested repeat (step number 5), repeats 2 steps 2 times. When the resulting job is run, the SENDS will be sequenced as follows:

| Step No. | Job Step | Actual Send position |
|----------|----------|----------------------|
| 1. | 18.000" | 18.000" |
| 2. | - 1.000" | 17.000" |
| 3. | - 1.000" | 16.000" |
| 4. | - 0.750" | 15.250" |
| 5. | - 0.250" | 15.000" |
| 6. | - 0.750" | 14.250" |
| 7. | - 0.250" | 14.000" |
| 8. | - 1.000" | 13.000" |
| 9. | - 1.000" | 12.000" |
| 10. | - 0.750" | 11.250" |
| 11. | - 0.250" | 11.000" |
| 12. | - 0.750" | 10.250" |
| 13. | - 0.250" | 10.000" |
| 14. | - 1.000" | 9.000" |
| 15. | - 1.000" | 8.000" |
| 16. | - 0.750" | 7.250" |
| 17. | - 0.250" | 7.000" |
| 18. | - 0.750" | 6.250" |
| 19. | - 0.250" | 6.000" |
| 20. | 2.000" | 2.000" |

NOTE: If the relative sends used in REPEAT steps or nested REPEAT steps result in a backgauge position that is determined to be out of the allowable range, the system will alert the user and not allow the job to be saved.

7.5.2 Backgauge Slider Control

The Backgauge Slider Control operates the same in the Job EDIT screen as it does in the CUT tab screen. See Section 7.3.3 Backgauge Slider Control for more details.

7.5.3 Number Pad

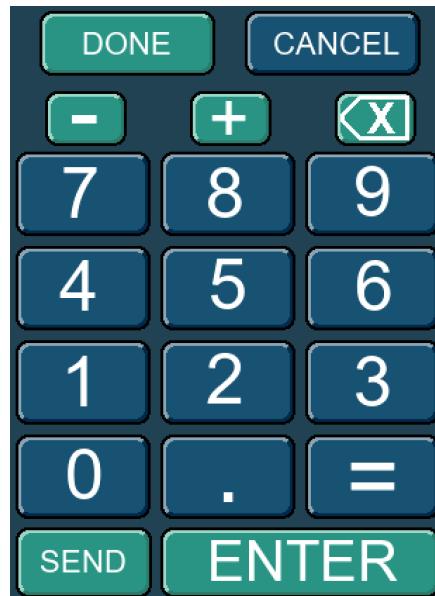








Figure 35 – Number Pad


The *Number Pad* is used to manipulate the data in the job steps and job. The functionality of each button is as follows:


- 
Done – First checks if there are any items or errors that need to be corrected and reports them on the screen, then if no errors are found it will bring up the Save Job panel.


- 
Cancel – Cancels out of the current screen and goes back to the previous screen without making changes.

- 
Subtract – Inserts a “minus” symbol into the current selected step. If it precedes the value in a send step, it will automatically convert the SEND type to a relative ‘-’ ().

- 
Add – Inserts a “plus” symbol into the current selected step. If it precedes the value in a send step, it will automatically convert the SEND type to a relative ‘+’ ().

- 
Backspace – Removes 1 character from the selected section in the step list. Can be held down to repeatedly remove items.

- 
Send – Sends the backgauge to the position in the selected SEND step. If no SEND step is selected the backgauge will not move.

- 
Enter – Formats the selected step in the step list and moves the cursor to the next available section in the step list. If the current selected step is the last one in the job, pressing the enter button will insert and select a new SEND step.

7.5.4 Save Job

The Save Job panel (Figure 36) appears when the **Done** button is pressed and there are no items or errors that need to be corrected.

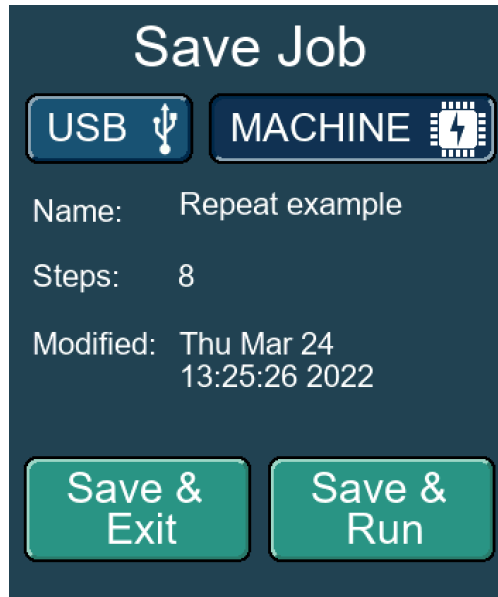




Figure 36 – Save Job

Jobs can be saved to either the internal machine memory , or a USB memory storage device  (formatted to FAT 32) that is inserted in the USB slot on the display panel. Use the buttons at the top of the panel to make a selection. The panel also displays the job name, number of steps, and time modified.

Clicking **Save & Exit** will save the job and return the user to the Job SELECT screen.

Clicking **Save & Run** will save the job, open it in the Job RUN Screen, and begin running the job, starting at the first step.

To exit this panel and return to the Job EDIT Screen, click **Cancel** on the *Number Pad*.

7.6 Job Tabs – RUN Screen



Figure 37 – Job RUN Screen

The Job RUN screen (Figure 37) appears whenever a job has been commanded to run. At the same time, the backgauge will move to the first step in the job to get ready for the first cut (if the first step is a SEND step). After each cut cycle, the program automatically advances to the next step in the job, and the backgauge moves accordingly. This continues until the job has been run completely, at which time the job returns to the first step in the job, ready to be run through again.

The next sections describe the three main areas of the Job RUN screen and how they are used, as well as an important new feature called “Cut Offsets”.

7.6.1 Job Step Panel

At the left side of the Job RUN Screen is the Job Step panel, which displays specific information about the job step being viewed and also some easy-to-use navigation features (Figure 38).



Figure 38 – Job Step Panel

7.0 Using the Pro Control System

At the top of the Job Step panel is the name of the job being run. Below that is the step-information section. This area displays detailed information about the step, including the “state” of the step as signified by its background color. The color designations are as follows:

Light Blue Background: The displayed step is the “Active” step, AND the backgauge is in the programmed (and shown) position for the step.

Yellow Background: The displayed step is the “Active” step, however the backgauge is NOT in the programmed (and shown) position for the step.

Gray Background: The step being viewed is NOT the “Active” step, but instead is another step in the job.

The Job Step panel also contains buttons with specific functions and usage. They are described below:



Browse Left – Views the previous step in the job. This does not however change the “Active” step in the job, as the background color will indicate. When navigating past the first step of the job, it will wrap around to the last step of the job. The button can be held down to repeatedly scroll through steps.



Browse Right – Views the next step in the job. This does not however change the “Active” step in the job, as the background color will indicate. When navigating past the last step of the job, it will wrap around to the first step of the job. The button can be held down to repeatedly scroll through steps.



Move To This Step – Makes the step currently being viewed become the “Active” step. If the newly activated step is a SEND step, the backgauge will immediately move into position.



Move To Next Step – Makes the next step in the job after the current “Active” step become the new “Active” step. If the newly activated step is a SEND step, the backgauge will immediately move into position.



Push Out – Performs a one-time backgauge push out.



Done – Exits the currently running job. If changes such as offsets have been made within the job while running it, the user will be prompted to save or discard them.



Edit – Directly enters the Job EDIT screen in order to edit the job being run.



Step number – Displays the number of the viewed step (top number) as well as the total number of steps (bottom number) in the job.

7.6.2 Backgauge Slider Control

The Backgauge Slider Control operates the same in the Job RUN screen as it does in the CUT tab screen. See Section 7.3.3 Backgauge Slider Control for more details.

7.6.3 Job List Tab

The Job List tab displays a scrollable list of all the steps in the current job (Figure 39). It provides another method for viewing and/or navigating the jobs steps within the current job.

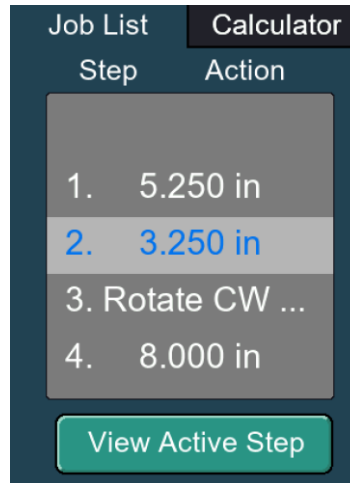


Figure 39 – Job List Tab

Scrolling through the list does NOT change the “Active” step. If changing the “Active” step is desired, press the **Move To This Step** button on the Job Step panel and this will make the highlighted step become the new “Active” step. The backgauge will move to the new position if it is different than the previous one.

The button labeled **View Active Step** at the bottom of the Job List will make both the Job List and the Job Step panel show the “Active” step in the job.

7.6.4 Calculator Tab

The Calculator can be viewed by clicking the **Calculator** tab (Figure 40). The Calculator works the same in the Jobs Run screen as it does in the CUT tab screen. It can be used as a tool for short calculations and also for manually sending the backgauge to a desired position.

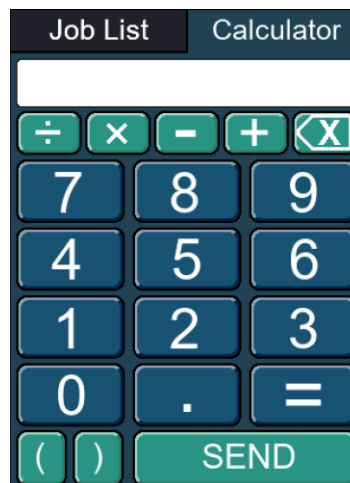


Figure 40 – Calculator Tab

7.6.5 Cut Offsets

The CHAMP 185Pro introduces a new and powerful feature that allows the operator to make small dimensional adjustments “on the fly” to some or all of the steps in a job while running it, in order to compensate for any variations in the actual dimensions of the printed job from the originally-programmed ones. This is especially useful when the printed output of a job is not located on the paper exactly as expected – as is often the case. The *Pro* system refers to these adjustments as “Cut Offsets”.

To utilize this feature, do as follows: While running a job if it becomes necessary to move the backgauge to a position different than the programmed position, simply do so using any of the methods available – Micro Adjust wheel, Slider Control, or a direct send. As described earlier, the Job Step background will change to yellow, indicating that the backgauge is not in the programmed position. Once the backgauge (and paper) are in the desired position, make the cut. Immediately after the cut cycle is finished, the Cut Offset window will appear, giving the user several options for how to manage the offset. Figure 41 shows an example of the Cut Offset window that appears after making a cut at 12.008” instead of the programmed value of 12.000”.

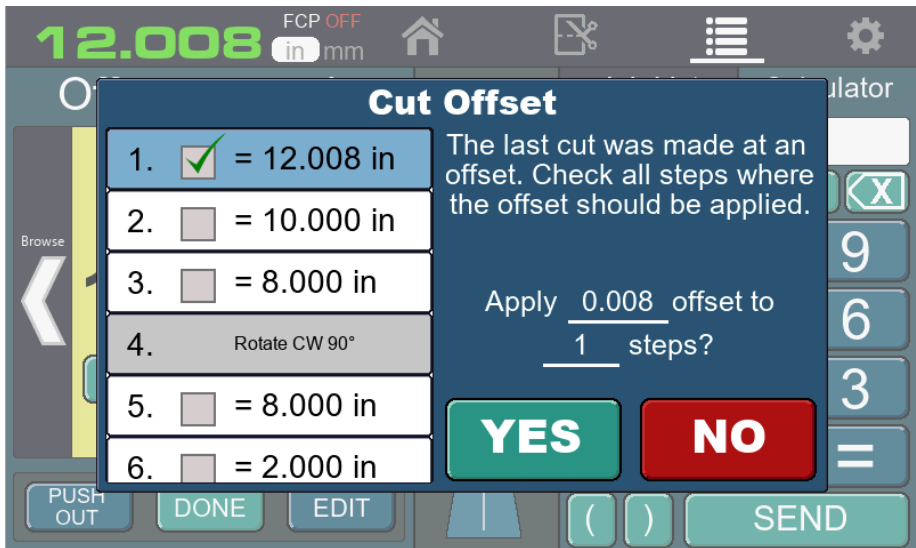


Figure 41 – Cut Offset Window

The operator now has the ability to apply the same cut offset amount to other SEND steps in the job. This is very useful for adjusting multiple cuts by the same amount, as is often required when an entire print job is shifted from its expected position on the paper. Steps that are selected will display the new SEND values with the offset applied. Figure 42, for example, shows the first 3 steps of the job selected to have an offset of +0.030” applied.



Figure 42 – Example Cut Offset

Once the offsets are applied, they will be active for as long as the job is open and being run. When the user is finished running the job and clicks the **DONE** button on the Job Step panel, they will be given the option to permanently save the offsets to the original job, or have it to revert back to the previous values. Saving the job with the offsets is useful when the printing is consistent from batch to batch.

7.7 Settings Tab

All settings for the system can be found in the Settings Tab. There are 6 main setting sections accessible to the user: General, Knife Change, Clock, Service Info, Cycles, and Display. A 7th section, Advanced Settings, is available to technicians and is available only by the use of a special code.

Scroll the window up or down to view the different sections. A basic explanation of each section is given in the sections that follow, however some items are more useful for maintenance, troubleshooting, and diagnostics and therefore are described in greater detail in the CHAMP 185Pro Technical Service manual.

7.7.1 General

The General settings are seen in Figure 43.

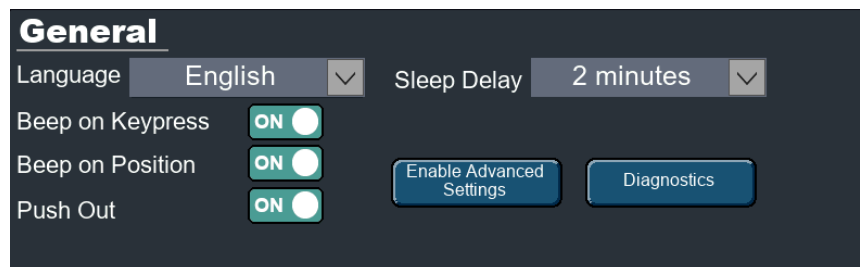


Figure 43 – General Settings

Language is selected using the drop-down list at the top left of the screen. This changes the language of the text on all screens.

Sleep Delay refers to the amount of time until the machine enters power-saving mode. If the machine does not receive any interaction (touch input, button input, etc.) for the amount of time selected in the Sleep Delay drop-down list, the machine will enter power-saving mode – turning off the display and other power-consuming features. The machine can easily be awakened by touching the screen, pressing a button, or breaking the eye beams (or raising the tilt shield depending on the model).

Beep on Keypress is a toggle switch that enables/disables the system beeper on touchscreen button presses.

Beep on Position is a toggle switch that enables/disables the system beeper when the backgauge reaches a SEND position.

Push Out is a toggle switch that enables/disables the system from performing a push out any time the backgauge is moved backwards using a SEND command. This does not affect the push out settings for individual steps within a programmed job.

Enable Advanced Settings enables extra service features that can be used for machine maintenance, troubleshooting, factory settings, etc. The user will need to enter a code to enable the advanced settings.

Diagnostics opens a window that can be useful for technicians to view and/or activate machine inputs and outputs. It also contains an error log.

7.7.2 Knife Change

Knife change mode is enabled using the **Knife Adjust Mode** toggle button. This feature is needed for certain procedures including the knife changes (see Section 8.0 Knife Installation/Changing). Instructions on the screen explain how to send the knife and clamp down properly.

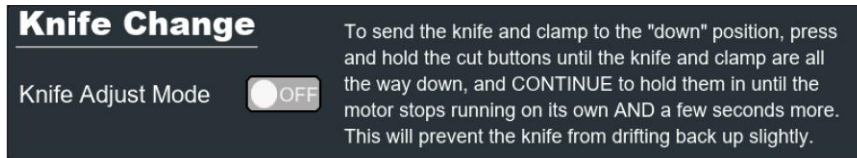


Figure 44 – Knife Adjust Mode

7.7.3 Clock

The *Pro* system uses a real-time clock and is able to keep time even when the machine is powered off or unplugged. It is important to have the correct date and time set because that information is used when saving jobs and error logging.



Figure 45 – Clock

The clock can be toggled between 12 hour and 24 hour formats using the **24-Hour** toggle button. Click the **Edit Time** button to change the date and time. Click the **Save Time** button when finished.

Calibrate Time should only be used if the clock is running notably fast or slow. Clicking the button will open a calibration window which will begin a process to sync the clock with the correct running speed. The process may take several minutes; do not use the machine or close the window once calibration has begun. Once the calibration sequence completes you may return to normal operation.

7.7.4 Service Info

The Service Information section provides details on who to contact in the event of machine maintenance or service. This section is typically set by the machine dealer or technician as a contact point for the end user.

Service Info

| | |
|-------------------|---------------------|
| Service Provider: | Challenge Machinery |
| Phone: | 012-345-6789 |
| Email: | Example@example.com |

Figure 46 – Service Info

7.7.5 Cycles

Various machine cycles are counted and stored in the Cycles section. Knife Count, Lubricant Count, and Machine Count are all individually incremented whenever a cut is performed on the machine. When the Knife Count or Lubricant Count reach a value higher than their “change” values, the operator will be notified the next time the machine is started. For example, in Figure 47, the knife and lubricant alerts would appear once they reach a value greater than 10,000 cuts. To change either of these values, simply click in the corresponding text box to bring up the number pad.

Cycles

| | | | | |
|-----------------|--------------------------------|--------------------------------------|------------------|------------------------------------|
| Knife Count | <input type="text" value="0"/> | <input type="button" value="Reset"/> | Knife Change | <input type="text" value="10000"/> |
| Lubricant Count | <input type="text" value="0"/> | <input type="button" value="Reset"/> | Lubricant Change | <input type="text" value="10000"/> |
| Machine Count | <input type="text" value="0"/> | | | |

Figure 47 – Cycle Counters

To zero out either the Knife Count or Lubricant Count, simply click the corresponding **Reset** button. The Machine count represents the total number of cuts made by the machine and therefore cannot be reset or modified.

7.7.6 Display

The display section (Figure 48) allows users to modify certain aspects of the display’s appearance that span across all screens within the *Pro* controls. Button characteristics can be modified using the 3 available sliders. The default button appearance can be reset any time using the **Reset Defaults** button. Also, users can select a display theme of either Dark or Light.

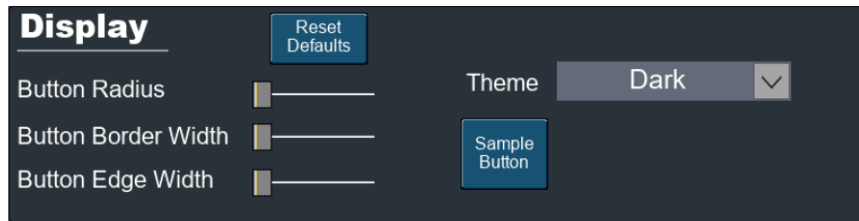


Figure 48 – Display Appearance

7.7.7 Advanced Settings

This area of the Settings screen is reserved for technicians only and therefore needs a code for it to be enabled. For information on how to do this and for more information about the features contained within, see the CHAMP 185Pro Technical Service manual.

Some of the available features in this mode include:

- Edit the Service Provider, Phone, and Email entries
- Perform machine software updates
- Adjust backgauge accuracy
- Save or Load machine/system parameters to/from a USB memory stick
- Save an error log to a USB memory stick
- View/change certain factory settings including model selection and installed options
- Reset non-critical machine parameters to default values

8.0 Knife Installation/Changing

CAUTION

Changing knives can be very dangerous unless safety precautions are observed and extreme care is taken when handling knives.

- Make sure knife lifter is properly installed, see instructions following.
- Keep handling of unprotected knives to an absolute minimum.
- Clear off cutter table before removing knife.
- Have scabbard on a stable surface very nearby and insert knife immediately.
- Warn people of any unprotected knife.
- Knife changing is a **ONE PERSON OPERATION**. Having more than one person change knives is dangerous.

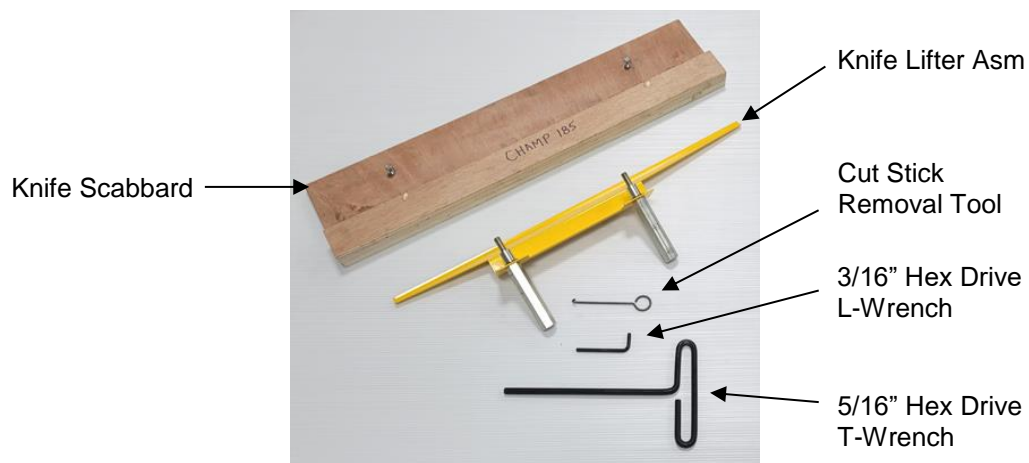


Figure 49 – Knife Changing Equipment

The knife changing equipment shown in (Figure 49) is included in the cutter tool kit. The following instructions show how to remove and install a new or re-sharpened knife. Read through these instructions **AT LEAST ONCE** before attempting to begin changing or installing any blades.

8.1 Knife Removal

1. Make sure the knife and clamp are in the up position. If they are not, switch the power ON and press the “Preset” button. The screen should instruct you to press the cut buttons to send the knife and clamp up.
2. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
3. Remove the knife bolts from the two slotted knife bar holes (Figure 50).

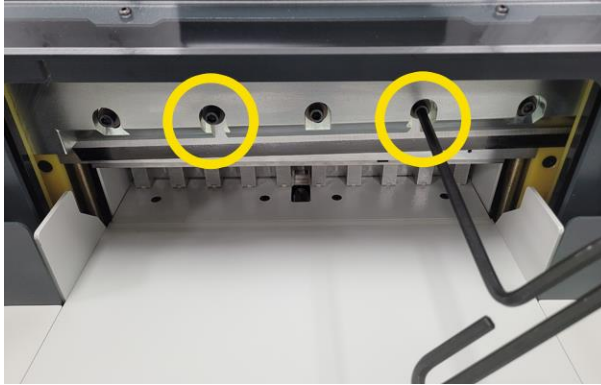


Figure 50

4. Insert the threaded ends of the knife lifter assembly's handles into the two slotted holes, and screw the handles into the knife itself until the handles are tight. Then remove the remaining three knife bolts (Figure 51).

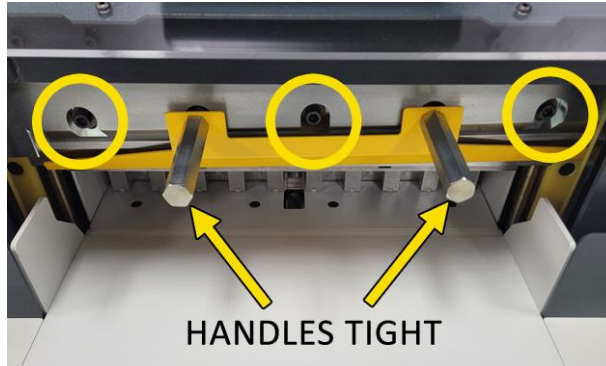


Figure 51

5. Place the empty knife scabbard on a table very near to the cutter. Remove the scabbard's knife retaining screws.
6. Grasp the knife lifter handles firmly and, at the same time, turn them counterclockwise slightly to release the knife from the knife bar. Carefully lower the knife and maneuver it out of the cutter.
7. Put the blade in the scabbard immediately and secure the knife retainer screws.

8.2 Knife Installation

⚠ CAUTION Knives are heavy and always very sharp! Be sure to keep the edge away from your body and keep other people out of the area while handling the blade. Severe lacerations or dismemberment could result from careless handling procedures.

1. First, it is very important to “back off” or “turn out” the knife adjusting screws on top of the knife bar by unscrewing each of them several turns. This is necessary to prevent the new or sharpened knife from cutting too deep into the cut stick initially. To do this, start by going to the settings screen and turn on “Knife Adjust Mode”. Then press and hold the cut buttons until the clamp and knife are all the way in the down position.

2. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
3. Turn out (unscrew) the knife adjusting screws on top of the knife bar several turns (Figure 52).
NOTE:: Failure to back off the screws could cause damage to the new knife and/or the cutting stick.

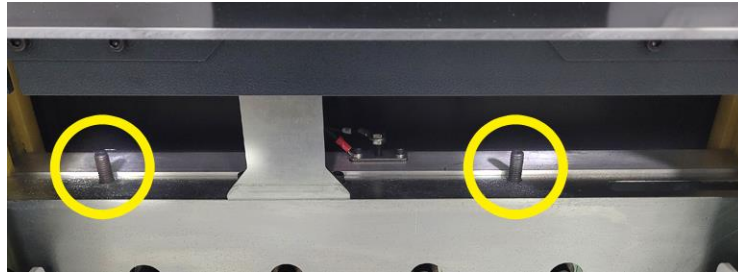


Figure 52

4. Restore power to the machine, switch the power ON, and press the “Preset” button. Send the knife and clamp up by following the instructions on the screen.
5. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
6. Pull out the cut stick using the cut stick removal tool and rotate or turn it to a new surface, or replace with a new one. If the top surface of the cut stick is below the level of the table, 1/2”/6mm strips of paper can be placed in the table slot under the cut stick to shim it.
7. Remove the retainer screws holding the new blade to the scabbard and screw the knife lifter handles into the new blade. Screw the lifters all the way in and then back them out about 3/4 of a turn.
8. Maneuver the knife into place in the knife bar. Unscrew the handles slightly if necessary to insert the handles into the slotted holes. Raise the knife as high as it will go, then tighten the handles firmly.
9. Insert knife bolts and washers into the three accessible holes and snug them tight enough to hold the knife safely, but do not tighten to final tightness.
10. Remove the knife lifter assembly by unscrewing the handles. Now insert the remaining two knife bolts and washers, and snug them like the others.
11. Place a few strips of paper over the cut stick, some in the center of the table and some on each side (Figure 53).
12. Restore power to the machine and switch the power ON.
13. Go to Settings and turn on “Knife Adjust Mode”. Press and hold the cut buttons to send the clamp and knife to the down position. Continue to hold the cut buttons until the hydraulic system stops on its own after a few seconds and then let go. If done correctly the knife should stay down and not shift up at all. **NOTE: It is very important that the knife does not shift up even the slightest amount.**

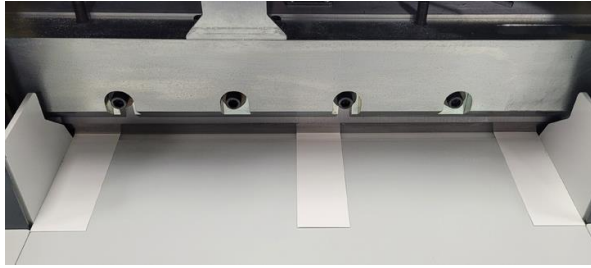


Figure 53

14. Switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
15. Using the 3/16 hex drive L-wrench, screw the knife adjusters down a small amount at a time on each side, until the knife cuts through the bottom sheets of paper in all three areas – left, right, and center (Figure 54).

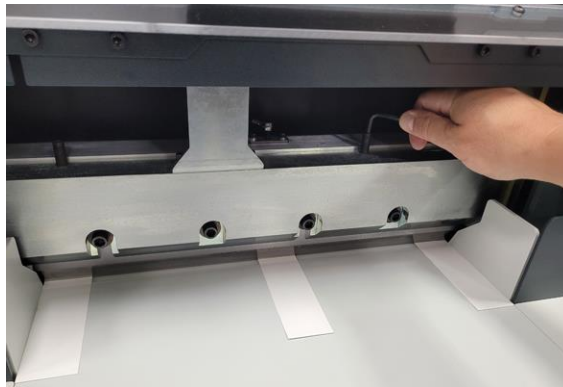


Figure 54

16. Once all three strips have been cut through, turn the adjustment screws 1/8 to 1/4 of a turn further to make sure the knife cuts completely through large piles of paper.
17. Restore power to the machine, switch the power ON, and press the “Preset” button. Send the knife and clamp up by following the instructions on the screen.
18. Once the knife and clamp are up, switch the power OFF, then disconnect power and lock it out (Section 2.2 Power Lockout Procedure).
19. Tighten all five knife bolts securely.
20. Once again restore power to the machine, switch the power ON, and press the “Preset” button.
21. Make a test cut through a full stack of paper and re-adjust the depth if necessary by repeating steps 11 through 20. **NOTE:** If the knife fails to cut through in the center area of the table only, it may be necessary to place a 1/2”/6mm strip of paper or two in the table slot beneath the cut stick, in the area where the knife doesn’t cut through.
22. Send the dull knife to a knife grinder. Do not attempt to sharpen your own knives! See the Knife Care Tips Section that follows for more information about knives including the recommended knife bevel angle.

8.3 Knife Care Tips



! KNIFE SAFETY ! Knives are **DANGEROUS!!!** They are heavy and very sharp, even after use. Keep the edge away from your body and keep the area clear of others when handling knives. Never touch the cutting edge! To prevent personal injury and damage to the knife, always keep knives in their holders with screws tightened. You are aware of the dangers, but others may not be. Never attempt to hone, polish, or service the knife in any way. Failure to follow safety procedures may result in severe lacerations or dismemberment.

8.3.1 Knife Blade Life

Knife blade life, or the time between sharpening, can be affected by many factors. One important factor is the type of paper being cut. Abrasive paper, such as recycled paper, soft paper such as newsprint paper, and bound books can all significantly shorten knife blade life. Also, if the knife depth is set too deep, the knife will cut too deep into the cutting stick and can dull the knife blade.

A knife can last between 2,000 and 5,000 cuts before it needs to be sharpened. Cutting soft paper (such as newsprint paper) or paper with high post-consumer recycled content can cause the knife to need sharpening after only 2,000 to 3,000 cuts. Cutting pure paper, such as bond paper with no recycled content, or hard paper can allow the knife to be used for as many as 5,000 cuts before it needs to be sharpened. In all cases, the operator should continually check the quality of the cut to determine when the knife blade needs to be sharpened. Some characteristics that indicate a blade needs sharpening are:

- The knife hesitates or stalls while making a cut.
- The sheets are not all cut to the same length (usually the top few sheets are longer than the rest of the sheets - this is sometimes called “draw”).
- Cut marks appear on the cut face of the paper.
- The profile of the cut (side view) is not perpendicular to the table.
- The cut does not appear straight when viewed from the top.
- The knife makes a “rougher” sound as it passes through paper.
- Nicks are visible on the cutting edge of the knife.

8.3.2 Cutting Stick

A worn cutting stick can affect the cut quality of the bottom sheets. When this happens, the cut stick can be rotated. Usually, the stick should be rotated one or two times between knife sharpening.

There are 8 possible cut stick positions. The stick can be rotated 4 times, and then turned end to end, and rotated 4 times again.

8.3.3 Bevel Angle

Challenge recommends that bevel angles for the CHAMP 185Pro knives be in the range of 21° to 23°. In general, a 21° bevel angle will provide better cut quality when cutting soft paper (such as newsprint), recycled paper, or bound books. However, 21° angle knives can become dull sooner than

8.0 Knife Installation/Changing

23° knives, which results in shorter knife blade life. A knife with a 23° bevel angle, on the other hand, will not dull as easily, and can provide satisfactory results when cutting most types of paper. Knives shipped with the CHAMP 185Pro from the factory have a bevel angle of 23°.

8.3.4 Helpful Suggestions

- It may be beneficial to have multiple sets of knives on hand – one set beveled at 21° and the other at 23°. **NOTE:** A set consists of 3 knives: one in the machine, one as a backup, and one at the grinder.
- If the machine seems to strain but the cut quality is still good, reduce the pile height. You may also carefully apply glycerin to the bevel when cutting hard, coated paper. Tie a cloth to the end of a stick; dip the stick in glycerin, and apply. Never apply by hand! In lieu of glycerin you may lightly rub white bar soap along the bevel. Lubrication will prolong the life of your machine and reduce maintenance.

8.3.5 Knife Care

- To prevent corrosion, knives are coated with light oil. It should be REMOVED WITH CARE.
- While removing or installing a knife, be careful not to allow the edge to bump against the machine. Nicks will result.
- If a knife bolt is damaged, replace it.
- Always keep knife bolts securely tightened.
- Always use the heavy-duty knife bolt washers provided by Challenge. Failure to do so could result in scratching or marring of the clamp face.
- Store knives in a dry environment to prevent corrosion.
- Never attempt to service a knife in any way.

9.0 Troubleshooting



CAUTION All service and repairs to this machine should be performed by trained service personnel only. Attempting to perform repair and/or replacement procedures without proper training may cause severe injury or damage to the machine!

9.1 Troubleshooting Chart

| Problem | Possible Cause | Solution |
|---|--|---|
| 1. The machine will not power up – no display, no line light, and machine will not cycle. | a) Power cord is disconnected. b) Main power switch is off. c) No power at electrical outlet. | a) Plug in cord. b) Turn power switch on. c) Check outlet. Repair or use another outlet. |
| 2. Display and line light are on, but machine will not cycle. | Models with front shield a) Front shield is open. b) Front shield has not been opened and closed since previous cut cycle. Models with electric eyes a) Eye beams blocked. b) Eye beams not aligned properly All Models c) Electrical supply circuit breaker is tripped. | a) Close front shield. b) Open and close front shield. a) Remove obstruction. b) Have a qualified technician make adjustment to align eye beams. c) Reset breaker switch. |
| 3. Backgauge will not preset after pressing “Preset” button on screen. | a) Knife and/or clamp are not fully raised up. b) Eye beams blocked or front shield not closed | a) Press both cut buttons to raise knife and clamp. b) Clear table and/or close front shield (if equipped). |
| 4. Knife cuts deeper on one side than the other. | a) Knife is not seated all the way up in knife bar. b) Knife depth adjusting screws are not set properly | a) Have a qualified technician use knife lifter assembly to raise knife up. b) Have a qualified technician reset knife depth. |
| 5. The machine strains through a cut. | a) Dull knife. b) Inadequate power source. | a) Change the knife with a new or sharpened one. b) The electrical outlet may not have sufficient power. Try another outlet on a different circuit. Consult an electrician to evaluate power source. |
| 6. Concave cutting – ends wide, center narrow. | a) Excessive moisture at edges of paper. | a) Keep paper in dry location. |
| 7. Concave cutting – variation from top to bottom. | a) Knife dull or incorrectly ground. | a) Change the knife with a new or sharpened one. Make sure knife is ground at the proper bevel angle. |

10.0 Safety Systems Test

Machine manufacturer CHALLENGE

Model CHAMP 185Pro

Serial Number _____

Frequency of test: **THESE TESTS SHOULD BE PERFORMED AT THE BEGINNING OF EACH WORK DAY.**

Switch power on and press PRESET to preset the backgauge. Make sure the knife and clamp are in the up position (if they are not, follow the instructions on the screen or in this manual to send them up).

Machines equipped with Front Shields:

Test #1: With the front shield open, press the cut buttons. Nothing should happen. If the knife and/or clamp come down with the front shield open, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Test #2: Close the front shield and press the cut buttons. While the clamp or knife is coming down, have someone open the front shield. The knife and clamp should immediately return to the up position. If they do not, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Test #3: Close the front shield and press the cut buttons. Allow a complete cycle to be made and release the buttons. After the knife and clamp return the up position, and without raising and lowering the front shield, press the cut buttons again to make 2nd, consecutive cut cycle. Nothing should happen without the front shield being raised and lowered between cuts. If the knife and clamp do come down, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Machines equipped with Electric Eyes:

Test #1: Wave a test object 25mm in diameter between the electric eye beams. The indicator lights should indicate the eyes are blocked. If they do not, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Test #2: With the area between the electric eye beams blocked using an object or by leaning forward, press the cut buttons. Nothing should happen. If the knife and/or clamp come down with the eye beams blocked, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Test #3: While making a cut, block the area between the electric eye beams using an object or by leaning forward. The knife and clamp should immediately return to the up position. If they do not, **DO NOT USE THE MACHINE – DISCONNECT POWER, AND LOCK IT OUT.** Repair or adjustment is needed.

Enter date and initials for each test.

Date _____

Test 1 _____

Test 2 _____

Test 3 _____

Date _____

Test 1 _____

Test 2 _____

Test 3 _____

Date _____

Test 1 _____

Test 2 _____

Test 3 _____

Date _____

Test 1 _____

Test 2 _____

Test 3 _____

Date _____

Test 1 _____

Test 2 _____

Test 3 _____

| Repairs | Initials of Repairer | Date |
|---------|-------------------------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
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