APPLETON MFG.

A301 AUTOMATIC CORE CUTTER

OPERATION MANUAL

Next Generation Films
Lexington, OH
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ALL PERSONNEL THAT OPERATE THE CORE CUTTING SYSTEM MUST BE COMPLETELY AND THOROUGHLY TRAINED IN IT'S SAFE OPERATION PRIOR TO USE!

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CHAPTER 4: ADJUSTMENTS

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MANUALS

There are three separate manuals for this equipment:

INSTALLATION: Installation instructions provided are to ensure proper alignment and anchoring of the equipment, the system configuration, and a description of the work flow.

OPERATION: Operation and safety instructions for the equipment. The Operation manual should stay with the equipment to be used as a reference guide by the operator.

MAINTENANCE: Operation and maintenance instructions, and the available replacement parts. The maintenance manual also includes the assembly drawings for the machine components to help identify the parts on the machine.

USING THIS MANUAL

This manual was developed to provide installation assistance based on our experience with the equipment.

Electrical and pneumatic schematics are included in the appendix of this manual for use by the appropriate trades. It is the responsibility of the installer to ensure that all applicable codes are complied with.

Read the first chapter thoroughly to minimize the chance of injury or equipment damage.

CHAPTER 1: SAFETY PRECAUTIONS

Your safety depends on knowing the potential for injury and the steps to take to avoid injury. Read through these safety notices, and look for the safety instructions in each chapter of the manual.

The following formats are used throughout the manuals to provide warnings or place emphasis on specific information.

1.1 SAFETY NOTICES

Immediate hazards which WILL result in serious injury or death. The instruction is stated first followed by the possible outcome of failing to heed the instruction.

Hazards or unsafe practices which COULD result in serious personal injury or death.

Hazards or unsafe practices where failure to heed instructions MAY result in minor personal injury or property damage.

Alerts operator to important messages or operating procedures.

1.2 USE OF CAPITALIZATION

Subject headings are fully capitalized. Words fully capitalized in the body of text indicate keys to be pressed by the operator, or denotes the name of a menu. Capitalization of the first letter of one or more words in a sentence indicates an emphasis on those words.

1.3 GENERAL SAFETY INSTRUCTIONS

Do not operate the A301 Core Cutting System without all guards in place. Serious injury or death will result from contact with moving parts or electrical circuits.

Keep untrained personnel out of the working area of the A301 Core Cutting System. Serious personal injury could result from unexpected mechanical movement. The working area is defined as any area within arms reach of a system component.

Do not wear loose clothing while in the work area of the A301 Core Cutting System. Clothing can snag in chains or rotating parts resulting in serious personal injury.

Wear safety glasses while operating the core cutter. Loose fibers or pieces of core can break loose and strike the operator.

Keep the floor clear of core ends and trash. Personal injury may result from slipping or stumbling.

1.4 ELECTRICAL SAFETY

Electrical panels should be opened only by a trained electrician. Severe electrical shock or death will result from contact with a powered circuit.

Disconnect the electrical power to the operators console before performing service on any electrical component. Severe electrical shock or death will result from contact with a powered circuit.

THE DRIVE COVER INTERLOCK DOES NOT DISCONNECT THE POWER TO THE OPERATORS' PANEL. Severe electrical shock or death will result from contact with a powered circuit.

Do not depend on EMERGENCY STOP/POWER OFF to de-power the machine. The incoming electrical service is still powered. Contact with this circuit will result in severe electrical shock or death.

1.5 MECHANICAL SAFETY

Keep hands and fingers clear of the cutting area. Knife movement will cause severe cuts.

Turn off the electrical power before performing maintenance on the Core Cutting System. Personal injury such as cuts, loss of fingers, or crushed fingers could result from unexpected machine movements.

DO NOT REMOVE THE ORANGE KNIFE GUARD. Severe cuts or loss of fingers could result from contact with the knife.

All knife adjustments can be made with this guard in place.

The head jaws in the cutting end of the mandrel are power driven and will rotate whenever "FEED START" pushbutton has been depressed.

The core will rotate when each cut is initiated.

Disconnect the electrical power to the machine before performing service to pneumatic system components. Failure to do this may result in personal injury from unexpected machine movements.

CHAPTER 2: SYSTEM CONFIGURATION

The A301 Automatic Core Cutting System includes the following components:

1- A301 Automatic Core Cutter

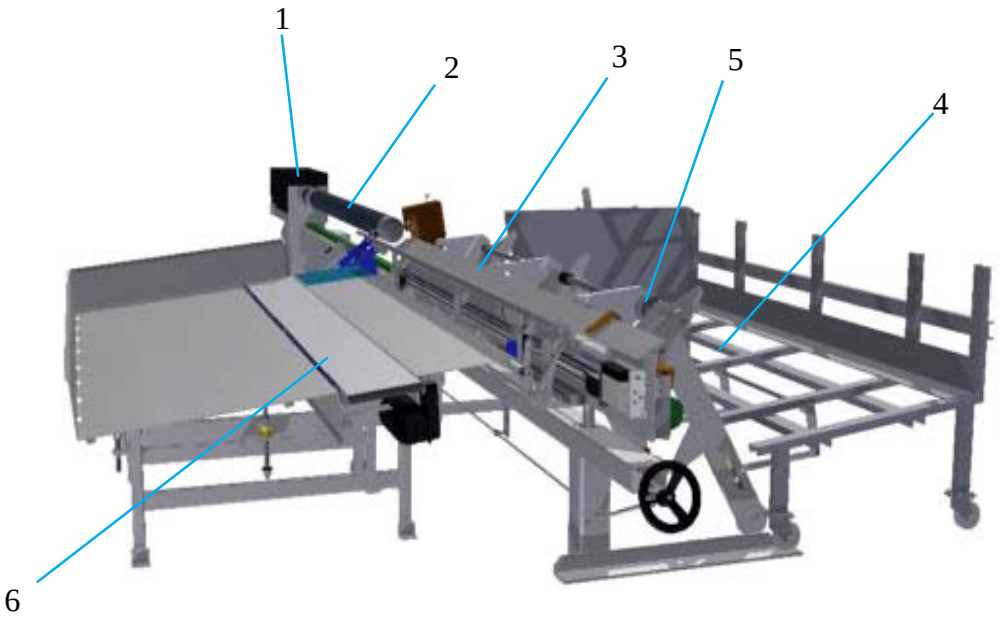
2- Optional Mandrels

3- Autoloader[3]

4- Parent Core Hopper

5- Parent Core Elevator

6- Cut Core Accumulator with Conveyor



2.1 DESCRIPTION OF SYSTEM WORK FLOW

Parent cores are loaded into the Wheeled Parent Core Hopper using a sling or lift truck. The Hopper, with the appropriate ID parent cores is docked at the Parent Core Elevator. This becomes the core supply for the system.

The Parent Core Elevator delivers cores to the Autoloader Core Tray on demand. From the tray, the parent cores are slid onto the core cutter mandrel by the Core Loader.

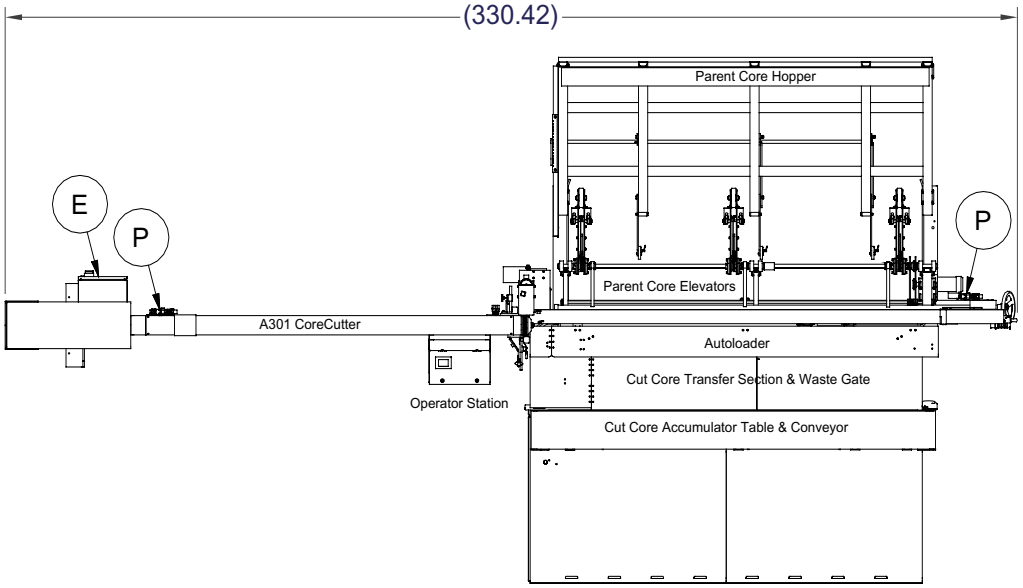
The Operator sets the target for the length to be cut, the quantity of cut cores required, and initiates Feed Start at the Operators' Console.

The A301 will continue to load and cut parent cores until the input number of cut cores has been completed.

The cut cores will be received into the Core Tray for side discharge onto the conveyor or over the conveyor onto the accumulator table based on operator settings in the program menu.

2.2 SYSTEM DRAWING

The components of the core cutting system are labeled on the drawing below.



CHAPTER 3: OPERATION

Read the manual BEFORE installing or operating the cutting system to avoid personal injury or damage to property.

Disconnect and Lock-out the electrical power and air supply to the core cutter before making adjustments to the core cutter. Unexpected movement could result in personal injury.

3.1 OPERATION OVERVIEW

The A301 Automatic Core Cutter w/Autoloader is designed to cut a parent core into shorter lengths established by a mechanical target.

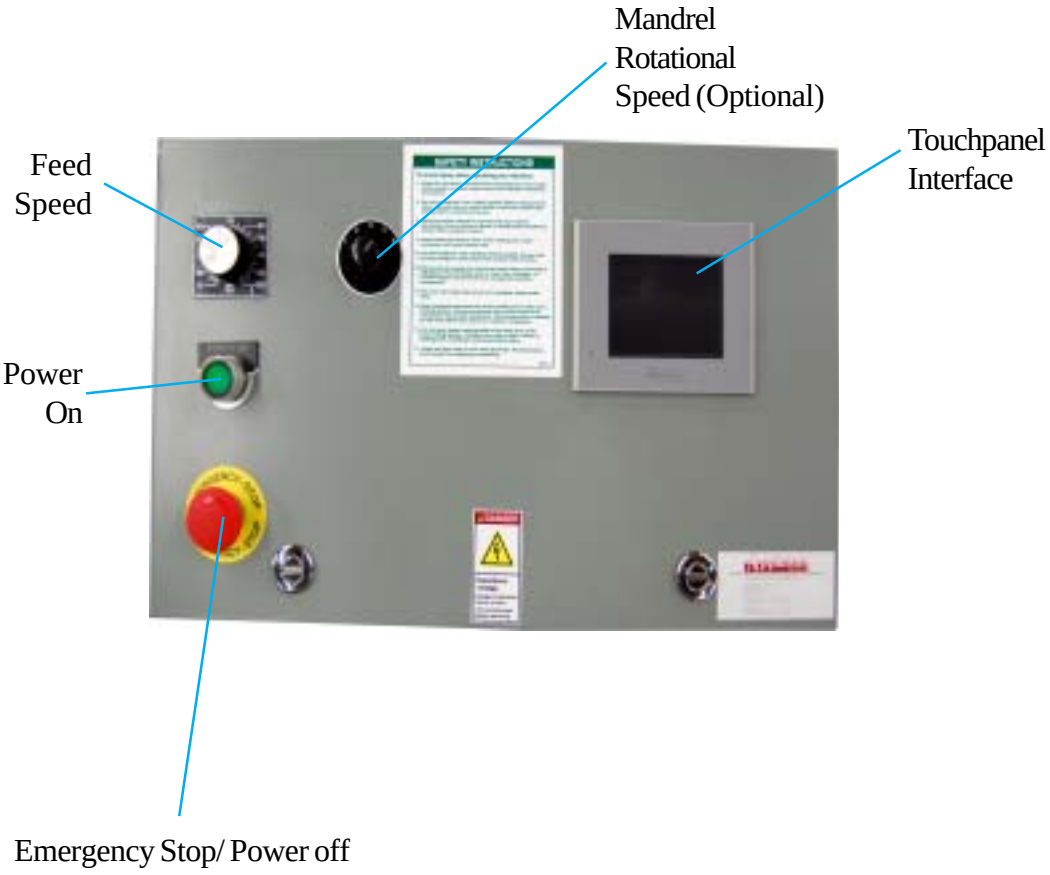
The operator sets the quantity to be cut and initiates automatic operation. The A301 Automatic Core Cutting and AutoLoading System, automatically loads a parent core and advances the core to a mechanical target that causes the core to rotate and the knife to advance through the wall of the core, cutting off a length.

The cut cores are discharged from the side of the core tray, onto the accumulator table or conveyor, as preset by the operator. When the parent core is fully consumed, the AutoLoading system loads another parent core. When the desired quantity is reached, the A301 system cuts the balance of the core and stops.

3.2 CONTROLS

The A301 Automatic Core Cutting System is equipped with an operators panel with pushbuttons and a touchpanel interface for operation of the machine.

3.2.1 PANEL DIAGRAM



3.2.2 POWER ON

When the “POWER-ON” pushbutton is pressed, there is electric power to the Touchpanel interface and the other pushbuttons on the operator’s panel.

3.2.3 POWER OFF/EMERGENCY STOP

When the “POWER OFF/EMERGENCY STOP” pushbutton is pressed, the drive motor, head jaws, and knife are not powered. The A301 is in “POWER OFF” mode until the “POWER OFF/EMERGENCY STOP” pushbutton is pulled out and the “POWER ON” pushbutton is pressed.

3.2.4 FEED SPEED

The “FEED SPEED” dial permits the operator to adjust the core pusher feed rate. Turn the dial clockwise to increase pusher speed, counterclockwise to decrease the speed.

NOTE **Excessive feed rates can result in a loss of accuracy and the end of the core being damaged by the target.**

3.2.5 MANDREL ROTATION SPEED

If your core cutter is equipped with Appleton’s Variable Speed Drive option, the rotational speed of the mandrel can be selected based on core diameter. please refer to the VSD manual located in the Appendix of this manual.

3.2.6 TOUCHPANEL INTERFACE

The Touchpanel Interface provides access to the automatic features of the core cutter. Menu options are selected by touching the desired menu key. Numeric input is achieved by pressing the desired numeric value and keying the new value in the pop-up keypad which appears automatically. Pressing the Enter key will save the value to the controller. This technique is common to all digit input.

3.2.7 MAIN MENU

The main Menu is displayed upon power up. This menu provides four options to the operator. Each option can be accessed by touching the corresponding key.

The **FEED START** key initiates automatic operation and opens the MACHINE RUN screen. While in automatic operation, the pusher advances the parent core to the target causing the knife to actuate, and cutting the core. The cycle repeats until the parent core is consumed. Note that the core drive does not start until the Feed Start pushbutton is pressed.

MACHINE RUN

The MACHINE RUN screen allows the operator to stop the automatic cycle, and change the knife timer.

This status screen indicates the machine is operating, and displays how many cuts have been made of the total production cuts.

Pressing the **FEED STOP** key stops the automatic advance and cut cycle.

The **KNIFE TIMER** key allows the operator to adjust the time in which the knife will cycle. The appropriate time will vary with wall hardness and thickness.

The operator can input a knife cycle time up to 99.9 seconds. This time should be set such that the knife returns as soon as the core separates. Excess time reduces knife life.

3.2.8 PRODUCTION CUT COUNTER DONE

When the Production Cut Counter indicates that the Accumulated Cuts (cores actually cut) are equal to the Production Cuts (cut cores desired), the automatic cycle will stop and Cut Counter Done screen will be displayed.

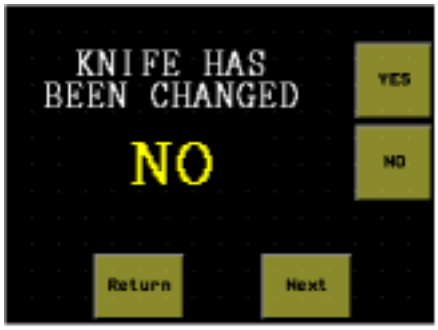
It will then be necessary to reset the Production Cut Counter. This is done by pressing the Reset key which opens the Cut Counter Reset screen. Press the **YES** key to affirm the Reset and then press **NEXT**. This returns to the Main Menu where cutting can be resumed by pressing the Feed Start key.

3.2.9 CHANGE KNIFE

NOTE **This screen is only available on machines equipped with the Auto Indexing Knife option.**

This screen indicates that the Auto Indexing Knife blade has made a full revolution and must be changed.

This screen will remain until the knife change is confirmed. After the knife has been changed, press the **RESET** key. The Knife Changed Confirmation screen will appear. Press the **YES** key followed by the **NEXT** key to confirm.



3.2.10 MANUAL MENU

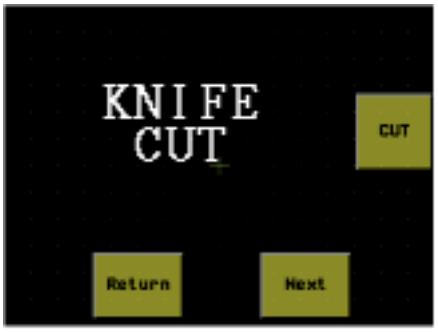
The Manual Menu pushbutton initiates a series of screens that permit the manual actuation of a number of core cutter functions. Each screen can be accessed by pressing the Next key on the current menu.

All MANUAL MENU option screens return to the Machine Run screen when the Return key is pressed.

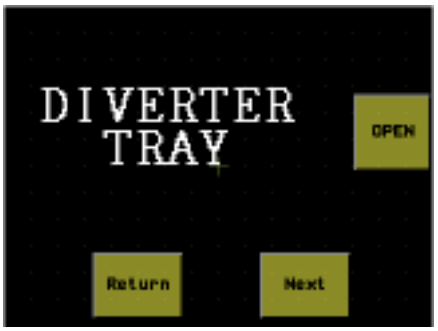
NOTE **Note that the core cutter is not designed for manually actuated production.**

WARNING **Keep loose clothing and fingers clear of the head jaws when using MANUAL KNIFE. The head jaws will expand and the knife will advance. These actions could cause personal injury such as severe cuts or loss of fingers.**

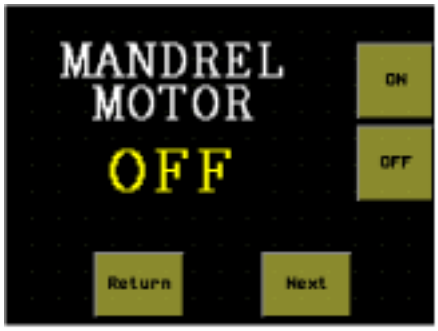
Knife Cut - The knife can be advanced into the core by pressing the **CUT** key. The knife advances only while the button is pushed and until the knife timer times out. Releasing the button causes the knife to retract from the core.



Diverter Tray - Open the diver tray by pressing the **OPEN** key. This allows waste pieces to travel down to the customer supplied waste bin.



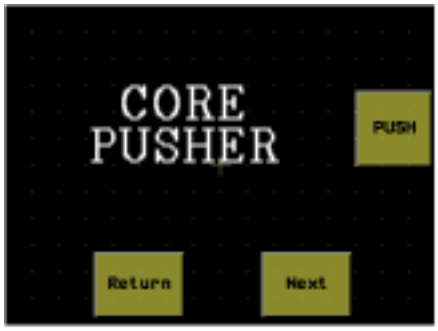
Mandrel Motor - Permits the mandrel drive motor to be toggled on or off using the **ON** and **OFF** keys located on the right side of the display.



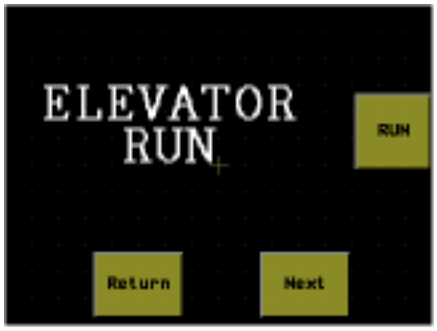
Index Knife - If the machine is equipped with Auto Indexing Knife option, this screen will index the knife one position when the **INDEX** key is pressed. If the knife has made a full rotation (requiring that it be changed) this screen will display a Zero under the Knife Index Positions Remaining.

Change Knife - After the knife has been changed, press the **RESET** key. The Knife Changed Confirmation screen will appear. Press the **YES** key followed by the **NEXT** key to confirm.

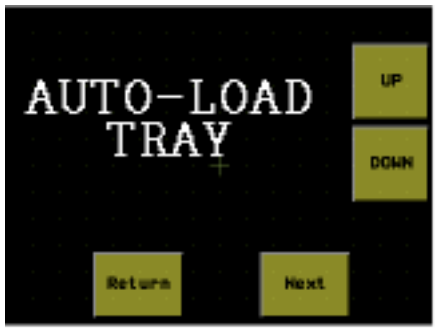
Core Pusher - The core pusher can be advanced by pressing and holding the **PUSH** key located on the right side of the display. If the pusher is at the forward travel limit switch the pusher won't move.



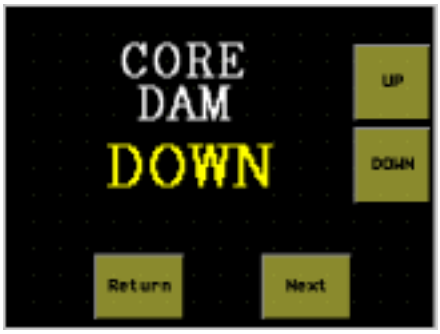
Elevator Run - Depressing The **RUN** key will cause the Elevator to move the next parent core toward the Autoload Tray as long as the key is pushed.



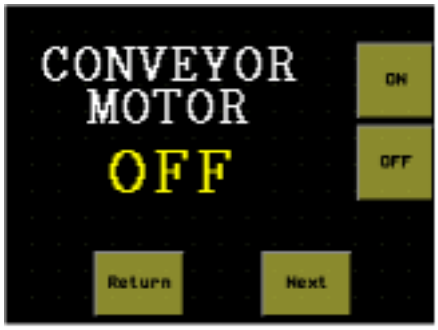
Autoload Tray - Depressing The **UP** key will move the Autoload Tray to the load position. Depressing the **DOWN** key will will move the Autoload Tray to the dump position.



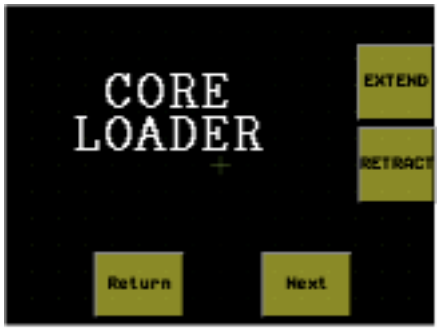
Core Dam - The accumulator table can be lifted to the core dam position by pressing he **UP** key located on the right side of the display. Pressing the **DOWN** key will lower the core dam.



Conveyor Run - Pressing The **ON** key will cause the Conveyor to run. Pressing the OFF key will stop the conveyor.



Core Loader - Depressing the **EXTEND** key causes the Core Loader to travel toward the knife until either the key is released or the Core Loader reaches the cut-off area (knife). Depressing **RETRACT** key will cause the Core Loader to travel away from the knife until either the key is released or the Core Loader reaches the home position on the outboard end of the tray.



3.2.11 PROGRAM MENU

The PROGRAM MENU provides the operator with access to a series of menus to edit the following parameters. Each screen can be accessed by pressing the Next key on the current menu.

All PROGRAM MENU option screens return to the Machine Run screen when the Return key is pressed.

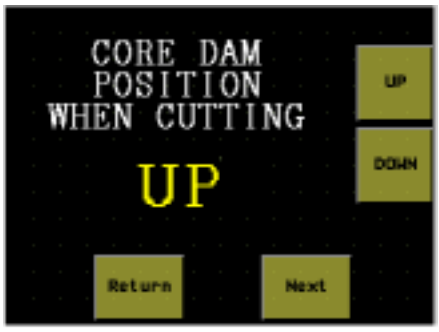
Production Cuts - The number of cuts that the A301 will make before stopping. Up to 9999 cuts can be input. When the count is reached the automatic cycle will stop and the counter must be reset.

Knife Index Cuts - If the A301 is equipped with the Auto Indexing Knife option, this screen will be available. The operator can input a value up to 999 cuts before the knife will index one position. Trim and manual cuts are counted. When the AIK option is enabled the operator is signaled with the “Change Knife” screen when the blade has made one full revolution and needs to be changed.

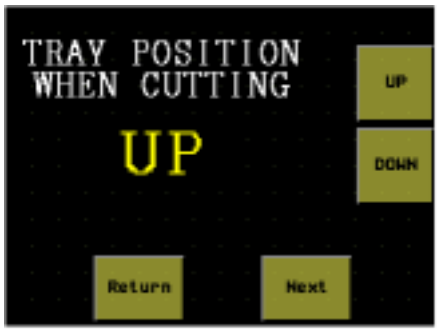
Power off Timer - The operator can input up to 99 minutes as the time that must elapse before the cutter will power down if left idle.

Accumulated Cuts Reset - This screen allows the accumulated cuts counter to be reset to zero by touching the **YES** key.

Core Dam Position When Cutting - Allows the operator to select the core dam position for automatically cutting cores. Pressing he **UP** key will place the core dam in the UP position causing cut cores to travel along the conveyor. Pressing the **DOWN** key will place the core dam in the DOWN position causing cut cores to accumulate on the table.



Tray Position When Cutting - This setting determines the position of the front side of the Core Tray while cutting. The tray will automatically lower to discharge the trim and butt pieces regardless of the setting chosen. When making this selection, observe the guidlines which follow.



The tray should be **UP** when:

-Dumping long cut cores off the side of the Core Tray individually or as a set of cut cores. Note that cut length must be equal to or greater than the core diameter to remain stable in the tray.

The tray should be **DOWN** when:

-Discharging short cut cores off the side one at a time as they are cut.

3.2.12 KNIFE TIMER

The **KNIFE TIMER** push-button allows the operator to adjust the time in which the knife will cycle. The appropriate time will vary with wall hardness and thickness.

Knife Timer - The operator can input a knife cycle time up to 99.9 seconds. This time should be set such that the knife returns as soon as the core separates. Excess time reduces knife life.

3.3 STATUS MESSAGES

The following list of messages appear on the screen to advise the operator as to the status of the cutting system:

Cut Complete - Knife is in home position after cut cycle.

Knife Is Cutting - Knife is extending into core for cut.

Must Confirm Knife Change - Must go to Program Menu and confirm knife has been changed before cutter will proceed.

Must Reset Cut Counter First - Must go to Program Menu to reset Accumulated Cuts before cutter will proceed.

Not At Forward Limit - Cannot perform function with Core Pusher at Forward Travel Limit Switch.

3.4 DAILY START-UP CHECK LIST

1- Push **POWER OFF/EMERGENCY STOP** pushbutton to make sure the machine is off.

Disconnect and Lock-out the electrical power and air supply to the core cutter before making adjustments to the core cutter. Unexpected movement could result in personal injury.

2- Check to ensure that the Mandrel Clamp Handle is secure.

3- Check the Drive Belt tension. DO NOT OVER TIGHTEN.

4- Inspect Knife Blade for sharpness. Rotate to a new surface if worn or chipped.

5- Ensure that the Support Rollers are in position.

6- Ensure that the Cutting Pad is properly aligned with the knife both longitudinally and radially.

7- Is the Cutting Assembly positioned 1/8” to 3/16” from the core?

8- Set the Target to the desired cut length.

Check to ensure that all personnel are clear of all system components before powering up the core cutting system. Unexpected machine movement could result in serious personal injury.

9- Pull out **POWER OFF/EMERGENCY STOP** pushbutton and press the **POWER ON** pushbutton.

Keep hands and fingers clear of the cutting area. Knife movement will cause severe cuts.

If the target is triggered while power is on, the knife will advance to the cutting pad. Fingers or hands in the cutting area at the movement the knife cycles could be seriously injured.

10- Check the Knife and Pull Rod Cycle by pressing **MANUAL KNIFE** pushbutton.

NOTE

Make this test only with a core of the proper ID positioned over the head jaws to prevent the head jaws from over-expanding, causing the cutting pad to retract behind the knife position.

CHAPTER 4: ADJUSTMENTS

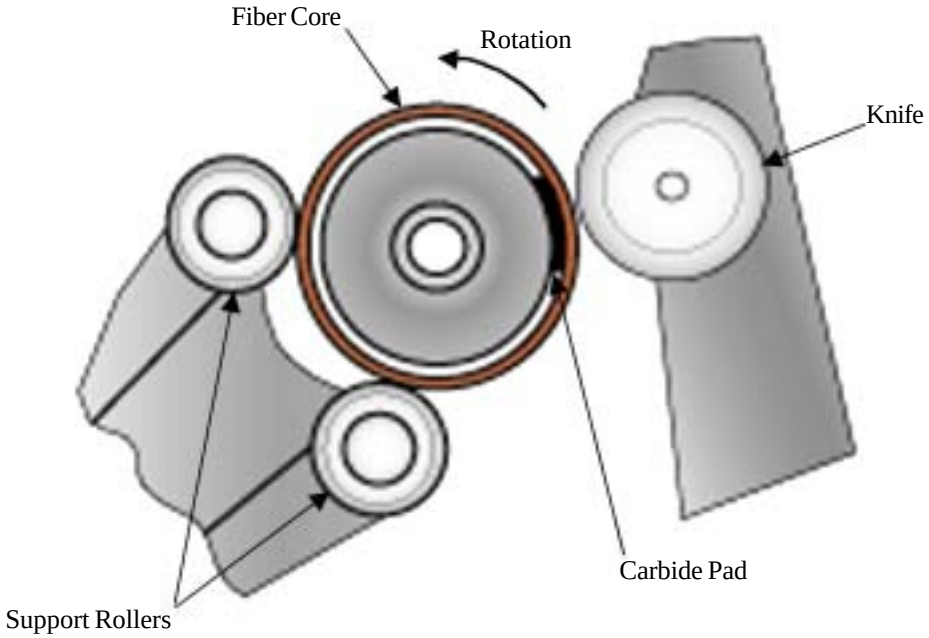
The A301 Automatic Core Cutter may require adjustments to optimize performance or to correct cut quality deviations. These adjustments are covered in the following sections.

Disconnect and Lock-out the electrical power and air supply to the core cutter before making adjustments to the core cutter. Unexpected movement could result in personal injury.

NOTE **The Mandrel and Support Rollers should be adjusted prior to adjusting the Knife and Carbide Pad.**

4.1 CUT OFF GEOMETRY

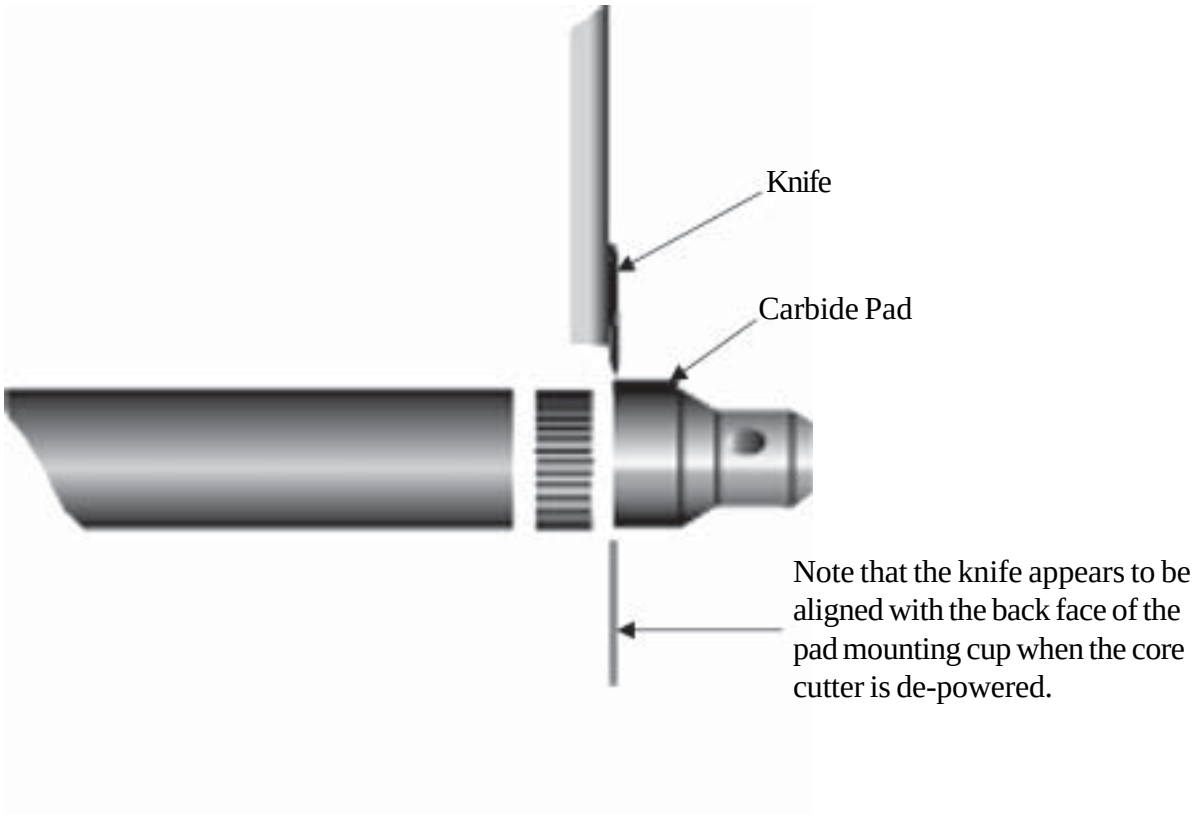
The cutting action, the accuracy and the quality of the cut, are dependent on the relationship of the knife, carbide pad, and support rollers. These parts are shown in the drawing below.



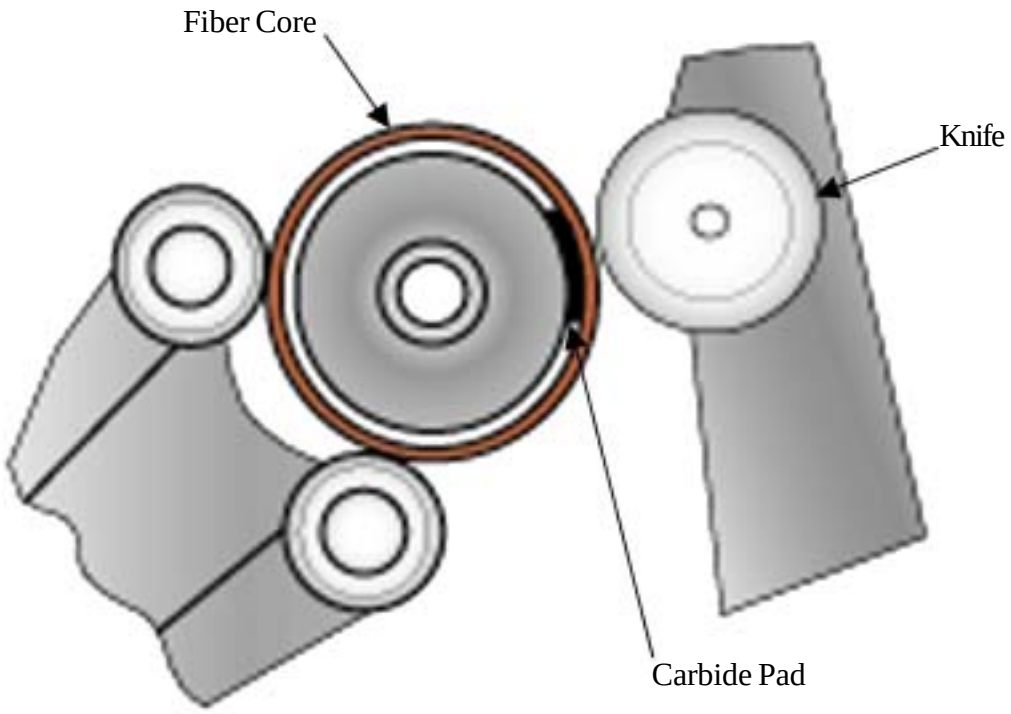
4.2 CUTTING PAD

Disconnect and Lock-out the air supply and electrical power to the machine before making adjustments. Unexpected machine movement could cause severe personal injury such as cuts, loss of fingers, or crushed fingers.

The carbide pad located on the pad mounting cup must be positioned such that the knife strikes the center of the pad at the end of each cutting cycle. The position of the properly adjusted pad, when viewed from above with the cutter de-powered, is shown in the drawing immediately below.



The pad must also be positioned radially to align with the knife. This relationship is shown in the following end view diagram.



The knife should be centered on the carbide pad when viewed from the top. The knife should also strike the center of the pad when viewed from the end. This adjustment is made by loosening and rotating the pad mounting cup.

4.3 KNIFE

Do not remove the orange knife guard. Severe cuts or loss of fingers could result from contact with the knife. All knife adjustments can be made with this guard in place.

The A301's cut quality is directly related to proper knife adjustment. If your cut quality starts to deteriorate (slivering, torn inner liner, or unbalanced cut angles end to end) you may have to make one or more of the following adjustments.

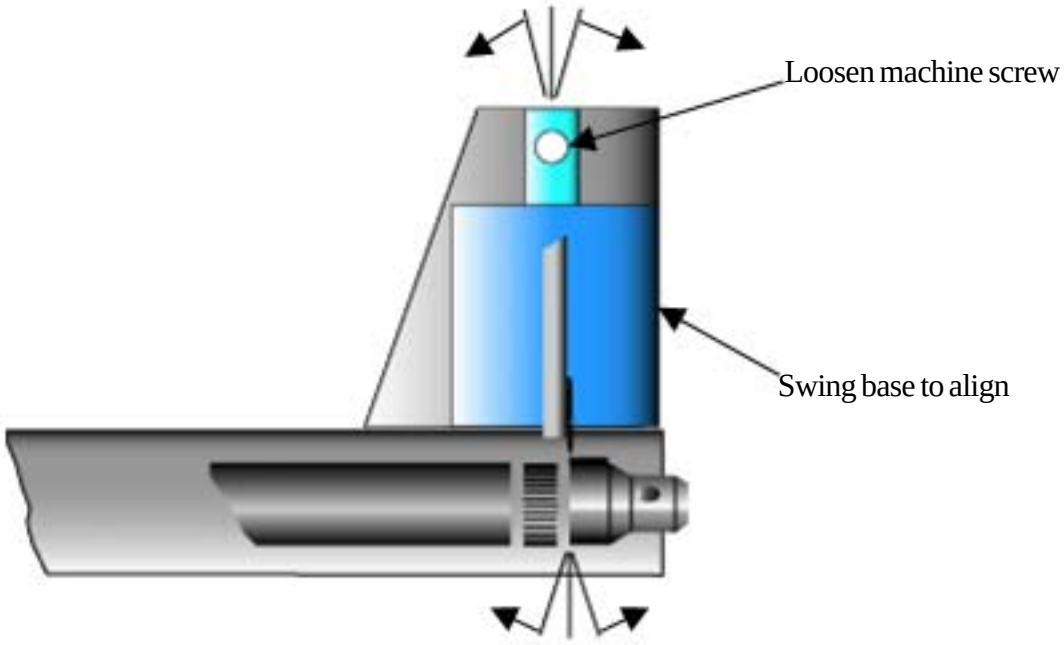
4.3.1 KNIFE ADJUSTMENT - VERTICAL PLANE

Disconnect and Lock-out the air supply and power to the machine before making adjustments. Unexpected machine movement could result in severe personal injury such as cuts, loss of fingers, or crushed fingers.

The knife should be square to the centerline (or edge) of the core. Both sides of a cut should exhibit the same angle. Should one side of a cut exhibit a greater angle, the knife should be adjusted to angle toward that side.

NOTE **If the knife is not sharpened to the same degree on both sides it can also cause a skewed cut.**

This adjustment is made by loosening the hex head machine screw that retains the dovetail, then moving the upper end of the dovetail until the knife is perpendicular to the axis of the core, as shown on the next page. Re-tighten the machine screws and test cut. Readjust as necessary to get equal angles on both sides of the core.



4.3.2 KNIFE ADJUSTMENT - HORIZONTAL PLANE

Disconnect and Lock-out the air supply and power to the machine before making adjustments. Unexpected machine movement could result in severe personal injury such as cuts, loss of fingers, or crushed fingers.

The knife should be perpendicular to the axis of the core on a horizontal plane. This adjustment controls the squareness of the cut. Should the horizontal alignment be off, the core will tend to sliver or thread.

This adjustment is made by increasing or decreasing the exposed thread on the right hand spherical rod end. Loosen the jam nuts on the cutting arm pivot shaft. Then loosen both jam nuts on the spherical rod end and adjust

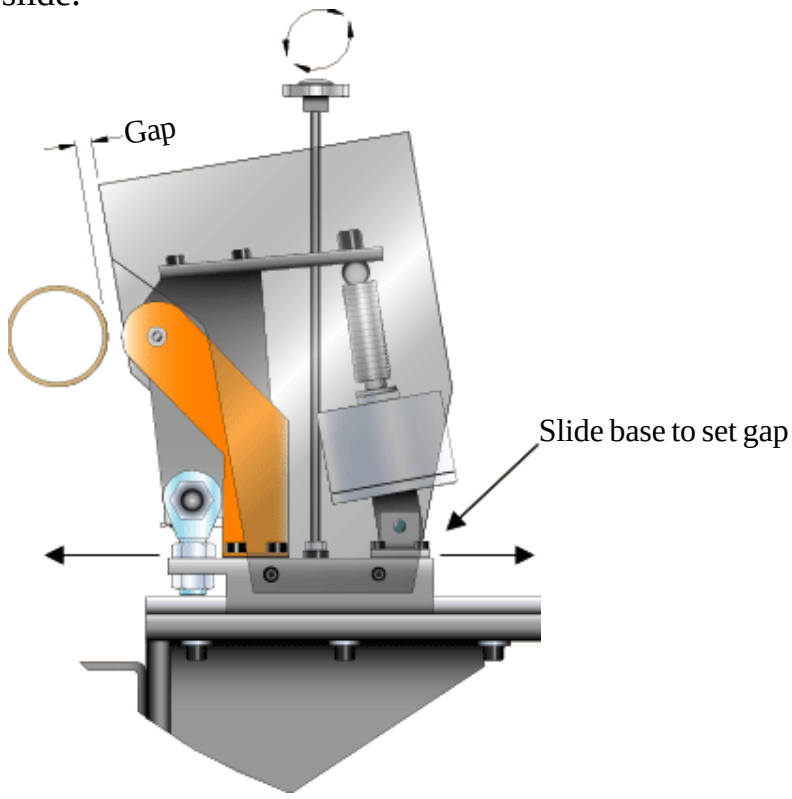
until the knife is square to the axis of the core. Re-tighten the jam nuts on the spherical rod end, then re-tighten the jam nuts on the pivot shaft.

NOTE **The two preceding adjustments may have to be further modified after the first test cuts.**

4.3.3 DEPTH OF CUT

Disconnect and Lock-out the air supply and power to the machine before making adjustments. Unexpected machine movement could result in severe cuts or loss of fingers.

The knife has a stroke of 1 inch. The depth of cut is set by the gap between the guard and the core. This gap should be preset at approximately 1/8 to 3/16 inch. The cut off assembly is released by turning the knife clamp knob at the top of the assembly counter-clockwise until the base can slide.



Slide the cut off assembly toward the core until the required gap is set. Re-tighten the knife clamp knob.

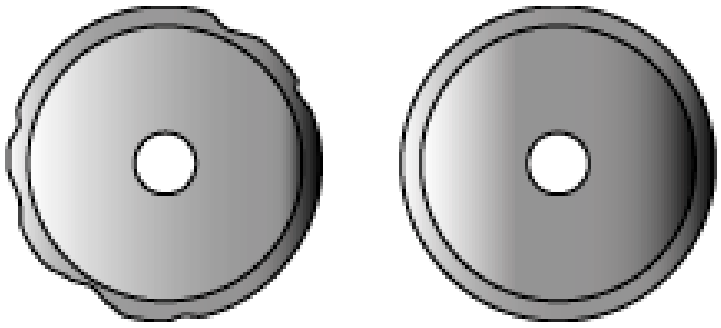
4.3.4 KNIFE ADVANCE SPEED

Keep hands and fingers clear of the cutting area while making knife advance speed adjustments. Serious cuts or loss of fingers could result from contact with the advancing knife.

The speed at which the knife advances is set by adjusting the thumb screw on the flow control valve mounted to the air cylinder. Turning this screw “in” restricts the air exhaust flow, causing the knife to advance more slowly. Should the valve be opened too far, the knife will dive into the core causing the core to stop rotating.

4.3.5 KNIFE WEAR

Maximum knife life and quality cuts are attained by frequent adjustment of the knife. The frequency of adjustment depends on core hardness, diameter, and wall thickness. You can determine the proper timing by monitoring the condition of the knife and the quality of the cut. The following diagrams have been included to help you measure knife wear. The diagrams depict knives that have been properly and improperly adjusted.



Improper Proper

Regular adjustment results in uniform wear and longer service life.

4.3.6 ADJUSTING AND CHANGING KNIFE BLADES

Disconnect and lockout the air and electrical power to the machine before changing knives. Severe cuts or loss of fingers could result from unexpected knife movement.

NOTE **The guards are not removed to adjust or change the knife.**

4.3.7 KNIFE BLADE ROTATION

Do not remove the orange knife guard. Severe cuts or loss of fingers could result from contact with the knife. All knife adjustments can be made with this guard in place.

The knife blade should be rotated as soon as it shows evidence of wear.

NOTE **If system is equipped with an Auto Indexing Knife option, the blade is automatically rotated.**

To manually rotate the knife, access the socket head cap screw that holds the knife in place, through the hole provided in the side of the guard. Rotate the knife blade clockwise about 1/8 inch. Re-tighten the socket head cap screw and reset the gap between the guard and the core.

4.3.8 KNIFE BLADE REPLACEMENT

Do not remove the orange knife guard. Severe cuts or loss of fingers could result from contact with the knife. All knife adjustments can be made with this guard in place.

The knife blade can be replaced by taking the socket head cap screw out of the cutting arm. Hold the blade to prevent it from falling. The new or re-sharpened blade is aligned with the tapped hole in the cutting arm and the socket head cap screw is replaced.

4.4 CORE DIAMETER CHANGE

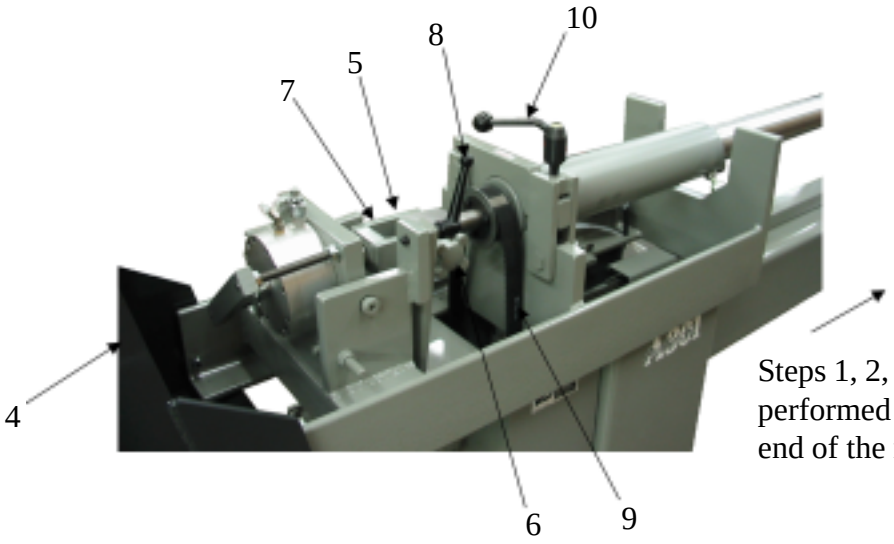
The A301 Core Cutter requires adjustments in the preparation for changing core diameters. If the change involves only the outside diameter of the core, the support rollers, core pusher and cut-off assembly will require adjustment. If the change involves the internal diameter of the core, the mandrel, core pusher, support rollers, and cut-off assembly may require adjustment.

4.4.1 MANDREL

The Mandrel is designed to fit the internal diameter of a specific core. The pad is designed to tolerate an internal core diameter variance of ± .020 inch. Should you desire to cut cores that are outside this range, you will have to change your mandrel. The procedures for removing and replacing a mandrel are described below.

4.4.2 REMOVING THE MANDREL

Disconnect and lockout the air and electrical power before removing or replacing the mandrel. Unexpected machine movement could result in personal injury such as severe cuts, loss of fingers or crushed fingers.



Steps 1, 2, 3, and 11 are performed on the outboard end of the mandrel.

1- Retract cut-off assembly 2 to 3 inches.

2- Disconnect the pusher from its carriage by removing the two locking nuts in the arm.

3- Support or sling mandrel in preparation for lifting out of machine.

4- Open drive cover.

5- Pull hitch pin.

6- Remove pull rod connector.

7- Tilt pull rod clevis away from pull rod.

8- Unlock motor, lift, and relock.

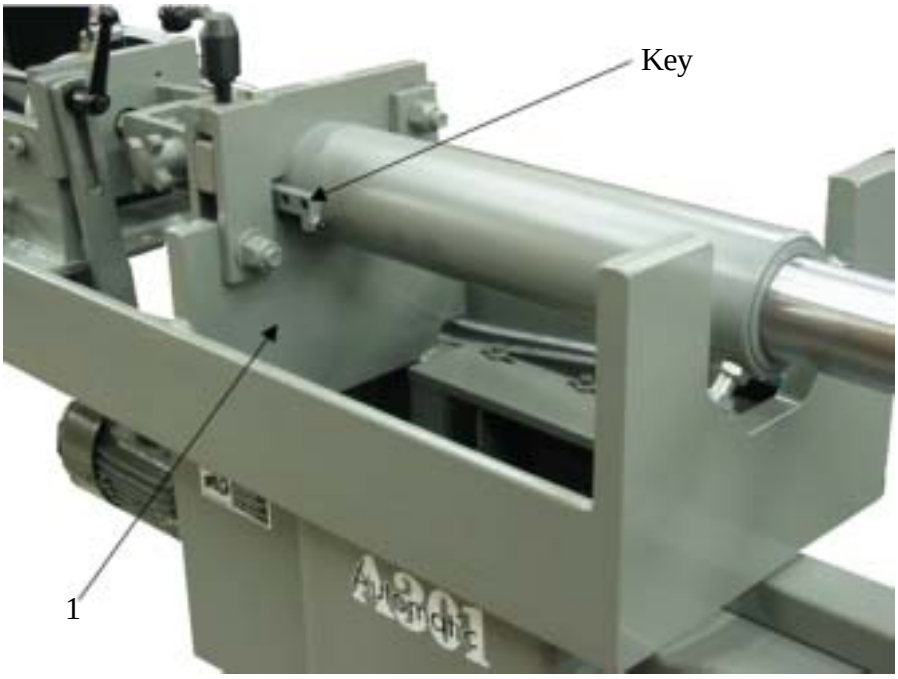
9- Remove belt from motor drive pulley, leave on mandrel pulley.

10- Loosen the mandrel clamp, swing toggle clear of the mandrel.

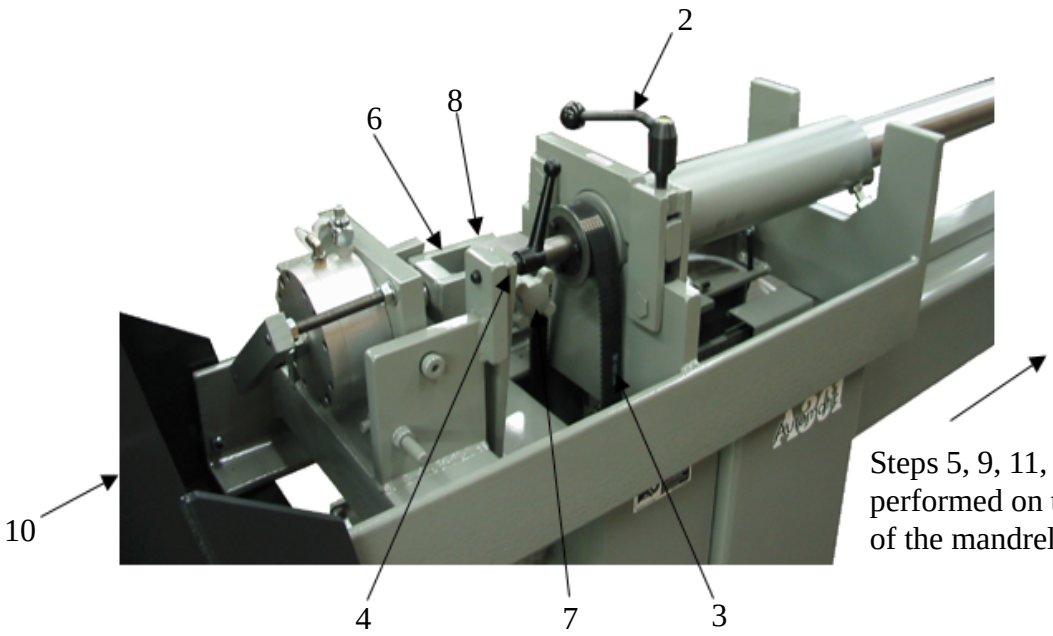
11- Lift out mandrel, place in storage.

4.4.3 REPLACING THE MANDREL

Disconnect and lockout off the air and electrical power before removing or replacing the mandrel. Unexpected machine movement could result in personal injury such as severe cuts, loss of fingers or crushed fingers.



1- Position mandrel in lower half of the clamp. Note that the anti-rotation key on the side of the mandrel aligns with the front side of the top surface of the rear mandrel cradle. Also ensure that the mandrel is seated against the face of the lower half of the clamp.



Steps 5, 9, 11, 12, and 13 are performed on the outboard end of the mandrel.

2- Swing toggle into place and tighten mandrel clamp handle.

3- Place belt on motor and mandrel pulleys

4- Tension motor.

5- Align cutting pad with knife.

6- Engage pull rod clevis.

7- Insert pull rod connector.

8- Insert hitch pin.

9- Adjust mandrel to support rollers if necessary.

10- Close drive cover.

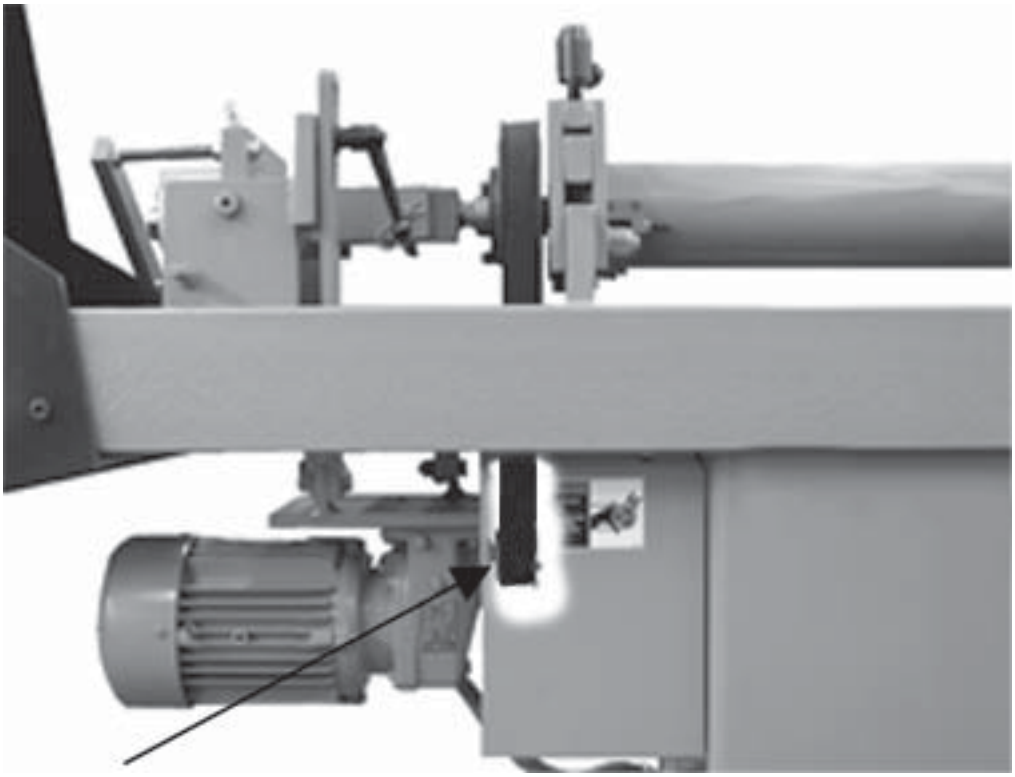
11- Remove support or slings from mandrel.

12- Reconnect the corresponding pusher.

13- Reposition cut off assembly.

4.4.4 BELT TENSION

The drive belt should be tensioned only to the point of taking out slack. Over-tightening the belt does nothing for performance and can result in failure of the gear motor output shaft. (See picture below).



Over tight belt will cause output shaft failure here.

Belt should have about 3/8" play
DO NOT OVER TENSION

4.4.5 MANDREL HEIGHT ADJUSTMENT

Turn off the air and electrical power before adjusting the mandrel. Unexpected machine movement could result in personal injury such as severe cuts, loss of fingers or crushed fingers.

Adjusting this jacking bolt moves the mandrel in the ↘↖ axis.

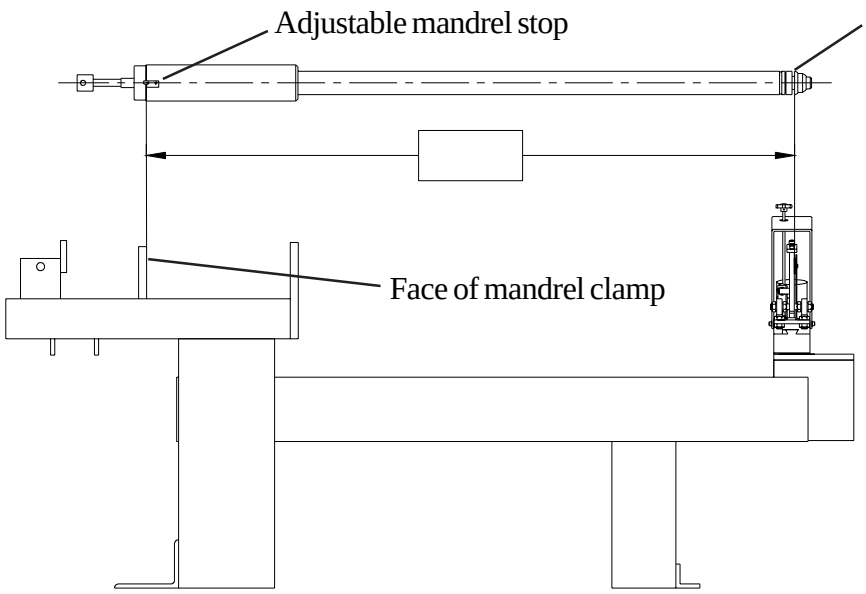
Adjusting this jacking bolt moves the mandrel in the ↕ axis.

The mandrel is adjusted by advancing the support rollers until they contact the mandrel. Both rollers should make contact at the same time. Retract the support rollers and slowly advance them toward the mandrel. In the event that one roller contacts first, the mandrel should be adjusted utilizing the two mandrel adjustment screws located at the drive end of the mandrel.

The support rollers should contact the core lightly, as too much pressure can mar the core. Too little pressure can result in cut length irregularities. The position of the rollers relative to the knife is factory set.

4.4.6 MANDREL LONGITUDINAL ADJUSTMENT

The position of the cutting pad is established by adjusting the locator at the base of the mandrel. This must be set so that at the end of the cutting cycle the knife strikes the center of the cutting pad. If the knife is passing behind the pad the knife will be snapped off by the pad at the end of the cycle.



MACHINE SIZE	TO FRONT OF MANDREL CLAMP
60	88-9/16
72	100-9/16
84	112-9/16
96	124-9/16
108	136-9/16
120	148-9/16
132	160-9/16
144	172-9/16
156	184-9/16
168	196-9/16

Checking pad position

First check to ensure that the knife is square to the mandrel, adjusting it as necessary to square it.

Next check to ensure that the knife is in the original factory position. The dimension shown on the following drawing is critical to proper setup—particularly if more than one mandrel is used on the core cutter.

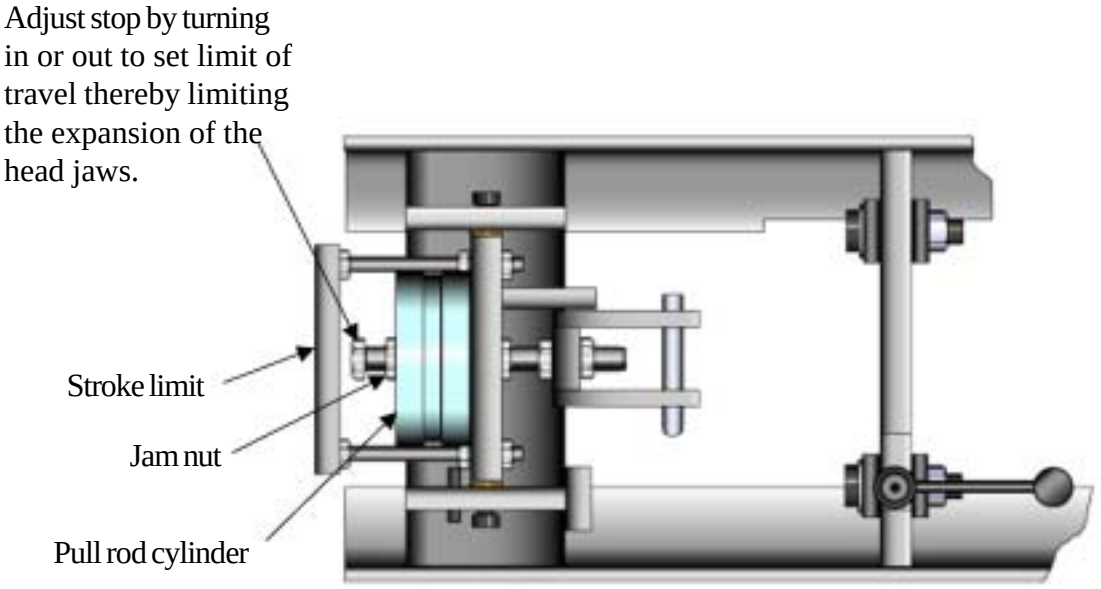
To check cutting pad position, slide a short length of core over the head jaws leaving the cutting pad exposed. Manually cycle the knife while observing where it strikes the cutting pad.

Adjust the stop at the base of the mandrel until the knife is striking the mid third of the pad with a core in place.

NOTE **Adjust all your mandrels to a given knife position rather than repositioning the knife each time you change mandrels.**

4.4.7 STROKE LIMIT

If you cut cores with a wall thickness less than ¼" your Universal series cutter should have a stroke limit on the pull rod cylinder. This limits the stroke of the cylinder to prevent the head jaws from over-expanding and bursting the thin wall cores. If the stroke limit gets out of adjustment it can prevent the head jaws from expanding sufficiently to grip the core. This can be remedied by adjusting the limit.



4.5 TROUBLESHOOTING CUT QUALITY

This section deals with troubleshooting cutting quality problems that may occur on an improperly adjusted Appleton A301 Automatic Core Cutter.

4.5.1 SPIRAL CUT OR SLIVERS

Cause: Knife not 90 degrees to axis of core

Remedy: Check for a warped knife, replace

Realign cut-off assembly

4.5.2 DELAMINATED OUTER/INNER LINER

Cause: Damaged or dull knife

Remedy: Rotate knife or replace

Cause: Improper adhesive coverage on core

Remedy: Review with core vender

4.5.3 ROUGH EDGE ON O.D. OF CUT

Cause: Damaged or dull knife

Remedy: Rotate knife or replace

Cause: Penetration speed to fast

Remedy: Adjust air flow valve on knife exhaust

4.5.4 ROUGH EDGE ON I.D. OF CUT

Cause: Knife not fully penetrating core wall

Remedy: Advance cut-off assembly

Cause: Worn pocket in cutting pad

Remedy: Replace pad mounting cup

Cause: Core I.D. exceeds tolerance

Remedy: Measure I.D., compare to core specs

Cause: Knife striking edge of pad

Remedy: Adjust pad location

4.5.5 ROUGH OR SCALY APPEARANCE ON CORE CUT FACE

Cause: Dull or improperly re-sharpened knife

Remedy: Rotate or replace knife

Cause: Improperly constructed core

Remedy: Try core from another batch or vender

4.5.6 CORE NOT FULLY CUT

Cause: Knife not contacting carbide pad

Remedy: Increase the “Cutting Time” Setting

Lower the cut-off assembly

4.5.7 TROUBLESHOOTING - MECHANICAL

Blade Breakage

Cause: Blade breakage is caused by the knife blade becoming trapped behind or in front of the carbide pad on the Pad Mounting Cup.

Remedy: Adjust the longitudinal position of the mandrel.

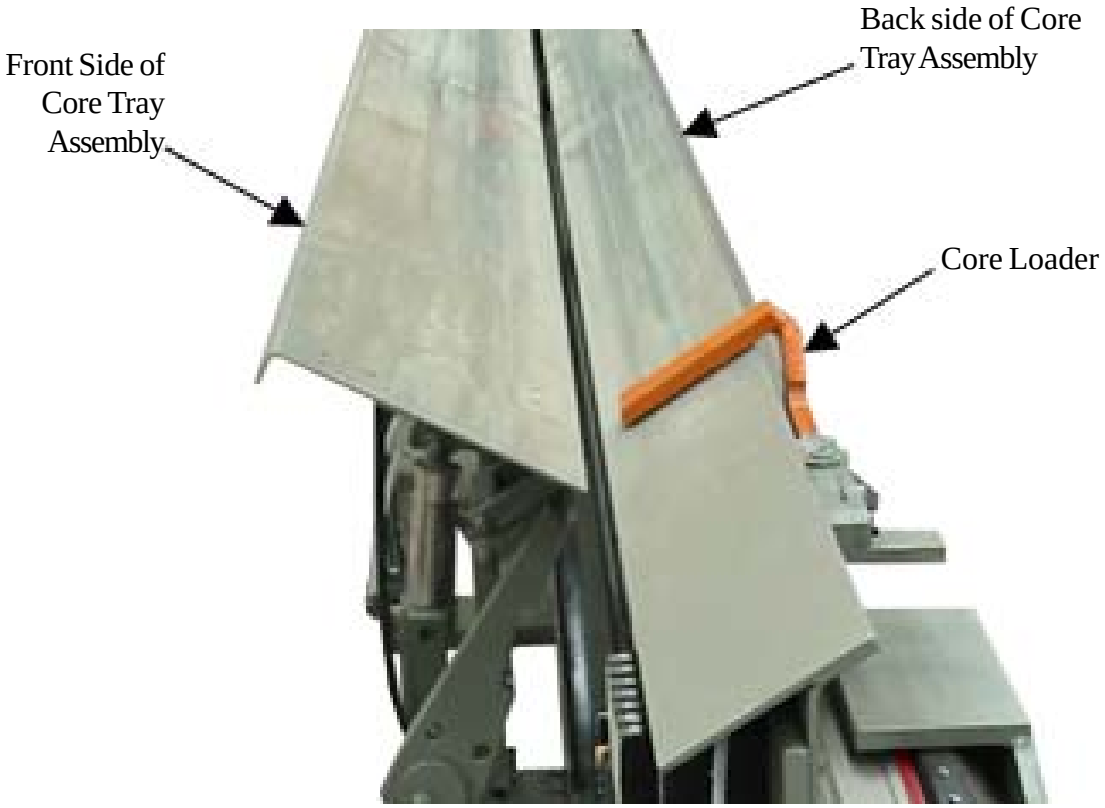
Over-expanding The Core

Cause: The head jaws are over-expanding, causing the core diameter to be expanded.

Remedy: Adjust the stroke limit on the pull rod cylinder to limit the expansion of the head jaws.

CHAPTER 5: AUTOLOADER^3

The operation of the AutoLoader^3 is controlled by the system's core cutter. Reference the core cutter operating instructions for information on the functions supported.



Check to ensure that all personnel are clear of all system components before powering up the core cutting system. Unexpected machine movement could result in serious personal injury.

5.1 ADJUSTMENT

Turn off the air supply and electrical power to the machine before making adjustments. Unexpected machine movement could cause severe personal injury such as cuts, loss of fingers, or crushed fingers.

Core tray Height Adjustment Handwheel

When changing core outside diameters, the Core Tray and target height must be adjusted.

5.1.1 CORE TRAY HEIGHT

The core tray should be raised or lowered using the handwheel located on the machine base. Place a parent core in the tray and align the core centerline with the mandrel centerline. Check to make sure that you can easily slide a parent core onto the end of the cutter mandrel.

5.1.2 TARGET HEIGHT

The target height needs to be adjusted so it has adequate contact with the core end to ensure that the core cutter receives a signal to make a cut. Adjust the target height as follows:

1- Place a core sample in the tray.

2- Loosen the machine screw that locks the target pad in place.

3- Hold the target in its extended (**UP**) position.

4- Slide the pad up or down until proper contact with the core end is established. The general rule is that the target should extend to about 60 percent of the core wall thickness. For core walls less than ¼ inch, the target should extend the entire wall thickness.

5- Tighten the machine screw to lock the pad in place.

NOTE **The parent core handling system may also require adjustment when changing diameters. Refer to the relevant module chapter for instructions.**

5.1.3 TARGET CUT LENGTH

The length of the cut cores is determined by the position of the target. The target length is set as follows:

1- Release the target brake by turning the Select Switch to Off.

2- Turn the Scale Length Handwheel until the digital read-out indicates the cut length desired. (Reference the ABS Digital Scale manual provided with the Core Cutter.)

3- Lock the target brake by turning the Select Switch to On.

5.2 MAINTENANCE

Disconnect the electrical power supply to the core cutting system before performing mechanical maintenance to the Auto-Loader and its components. Severe injury such as loss of fingers or crushed fingers could result from unexpected movement of the tray or core loading mechanism.

Turn off the air supply to the machine before performing service to machine. Failure to do this could result in serious personal injury from compressed air.

5.2.1 MECHANICAL

Check the system periodically for loose or missing fasteners.

Lubrication

All bearings on the Autoloader[3] are self-lubricating.

5.2.2 ELECTRICAL

Periodically check the limit switches for wear or loose mounts.

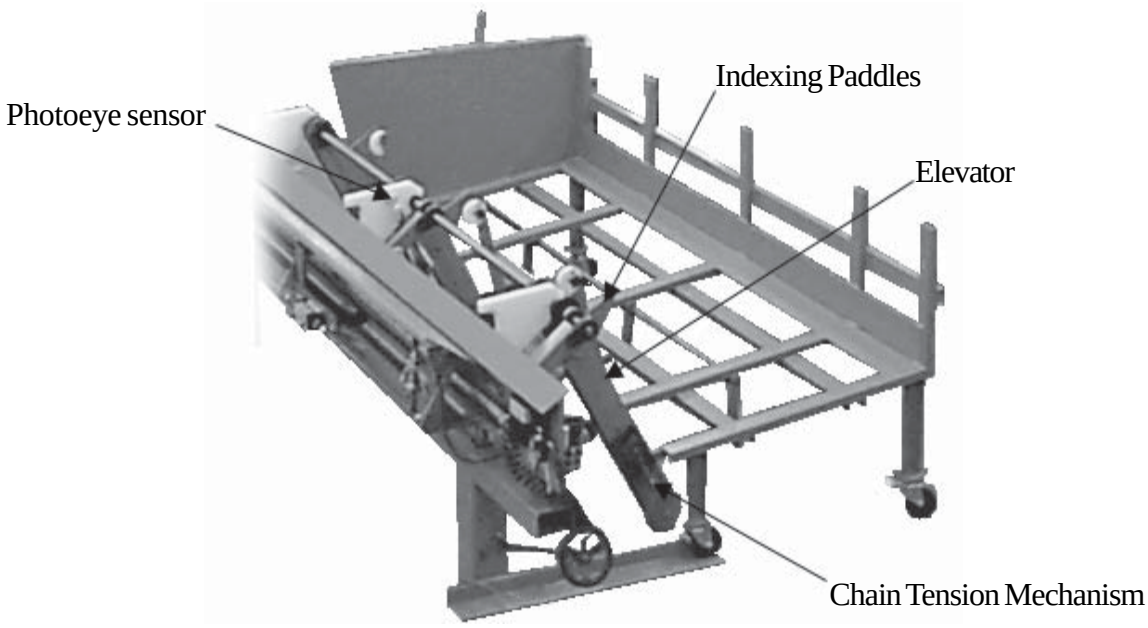
5.2.3 PNEUMATIC

Check the Filter/ Regulator/ Lubricator and service by draining water or adding oil as necessary.

CHAPTER 6: PARENT CORE ELEVATOR

Check to ensure that all personnel are clear of all system components before powering up the core cutting system. Unexpected machine movement could result in serious personal injury.

Do not put your fingers between the elevator chain and the sprockets. The chain could move without warning, pinching your fingers or hand and causing severe injury.



The AutoLoader^3 Parent Core Elevator delivers cores to the AutoLoader Core Tray from a hopper or other compatible source.

6.1 OPERATION

There are no user operating functions on the elevator. The paddles index on demand to deliver cores to the AutoLoader Core Tray.

When the core cutter program calls for a core the elevator paddles will index until a core is delivered to the Core Tray. When the photoeye senses another parent core is at the top of the elevator it will pause to allow for the parent core being processed to be cut and discharged. After the cut cores are discharged and the program calls for another parent core, the elevator resumes indexing, and another core is delivered to the core tray.

NOTE **If a parent core is not sensed on the elevator for a fixed interval, it will assume no cores remain in storage and stop indexing.**

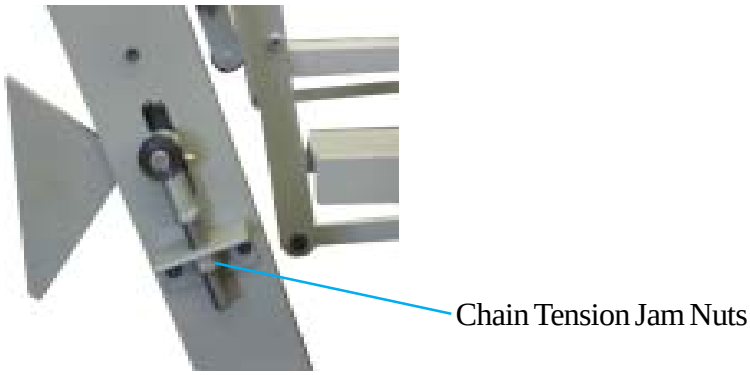
6.2 ADJUSTMENT

The angle of the elevator is mechanically linked to the AutoLoader Core Tray and adjusts automatically with any adjustment of Core Tray height.

Associated parent core storage equipment may require concurrent adjustment. (Reference the relevant equipment chapter for adjustment procedures.)

6.3 MAINTENANCE

Disconnect the electrical power supply to the core cutting system before performing mechanical maintenance to the Autoloader and its components. Severe injury such as loss of fingers or crushed fingers could result from unexpected movement of the tray or core loading mechanism.



6.3.1 MECHANICAL

Chain Tension

The chain may require periodic adjustment to take up slack resulting from normal wear. When the core paddles begin to tilt downward and no longer retain the parent core, the chain should be tightened by taking up the Chain Tension Jam Nuts.

Elevator Drive Motor

Replace motor on failure.

Lubrication

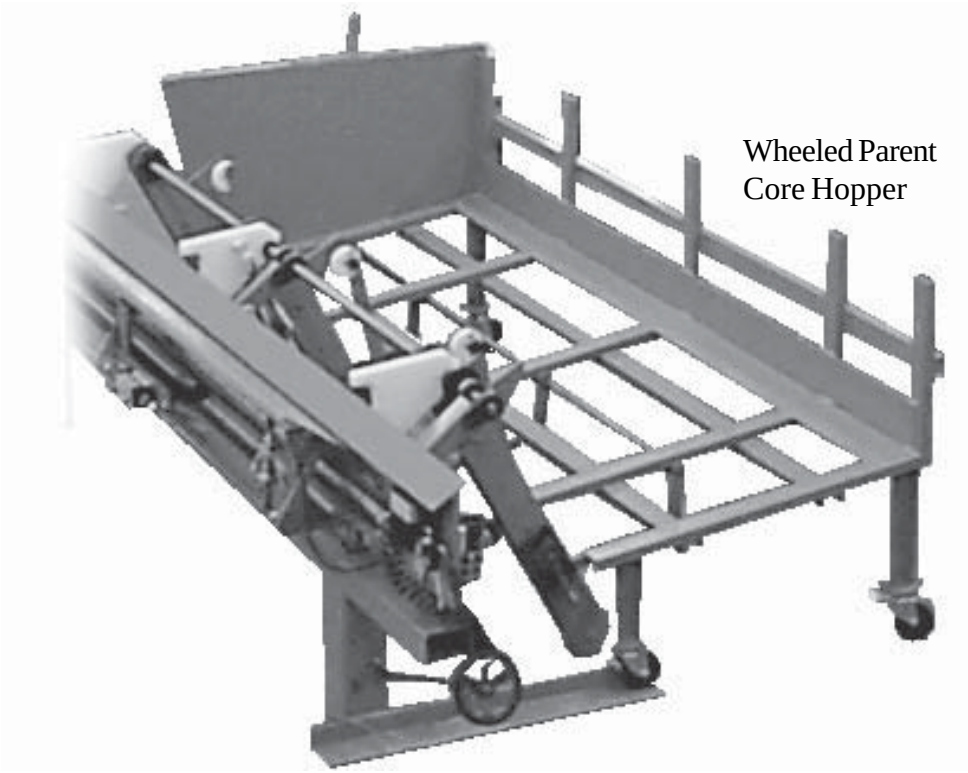
- Chain sprocket bearings
- Drive shaft bearings

6.3.2 ELECTRICAL

Photoeye lenses should be cleaned periodically with a soft cloth.

CHAPTER 7: WHEELED PARENT CORE HOPPER

Keep untrained personnel out of the working area of the cutting system. Serious personal injury could result from unexpected mechanical movement. The working area is defined as any area within arms reach of a system component.



Wheeled Parent Core Hopper

The Appleton A301 Core Cutter w/Autoload system includes moveable parent core hoppers to facilitate changes in parent core inventory.

7.1 OPERATION

Do not wear loose clothing while in the work area of the system. Clothing can snag in chains or rotating parts resulting in serious personal injury.

Parent Cores should be loaded into the Parent Core Hopper horizontally, with core ends facing the end walls of the hopper.

NOTE

Specify your core length "Not to exceed" the length dimension of the hopper. If your core vendor applies "standard" industry tolerances to our specified core length, you could end up with cores too long to fit into the system.

7.2 DOCKING

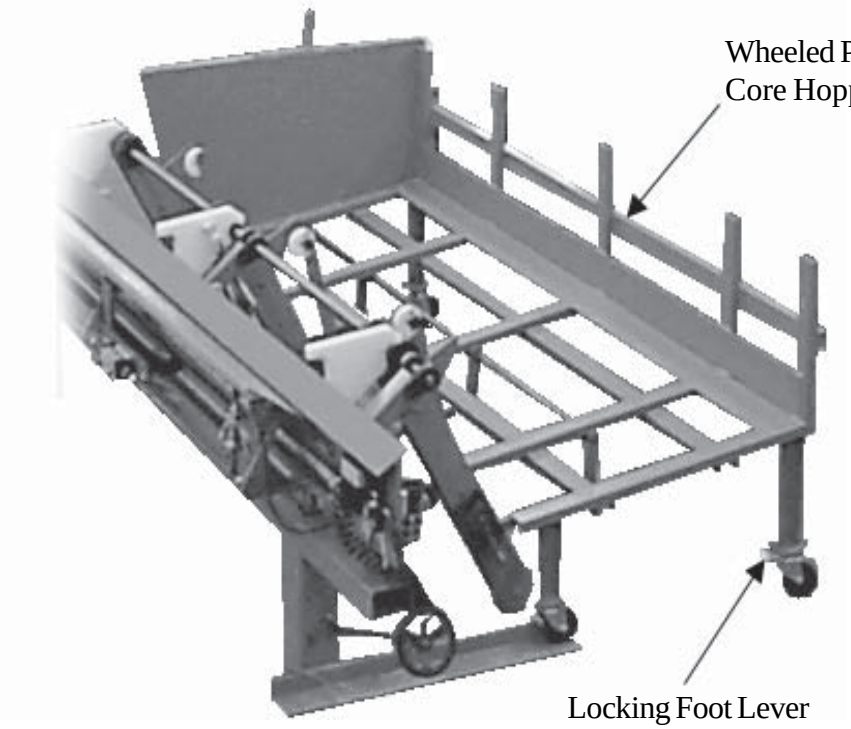
Disconnect the electrical power to the system before entering the hopper. Unexpected movement of the elevator could cause personal injury such as loss of fingers or pinched limbs.

The hopper must be properly docked at the elevator to ensure a ready supply of parent cores.

1- Make sure the elevator paddles are outside the load area.

2- Engage both front wheels in wheel chocks provided at the base of the elevator.

3- Lock both rear wheels by depressing foot levers located on the wheels.



7.3 ADJUSTMENT

Do not make adjustments to the machine while the electrical power is connected. Personal injury could result from unexpected machine movements.

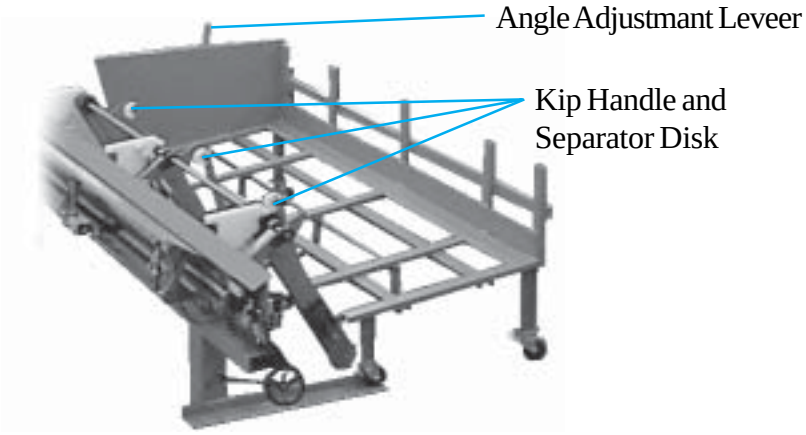
To ensure that only one parent core is delivered to the the Core Tray, the parent core hopper may require a combination of two adjustments when changing core diameters.

Core Stop Arms (Primary Adjustment)

Use the Angle Adjustment Lever to adjust the Core Stop Arms to allow only one parent core on the elevator paddle as it moves to the top of the elevator. The Core Stop Arms keep two parent cores from setting side by side on the elevator paddle. The Core Stop Arm will be moved back (away from the elevator) for smaller diameter cores, and forward for larger diameter cores.

Separator Disks (Secondary Adjustment)

Loosen the Kip Handle to move the disk to the appropriate position to “knock off” additional parent cores from sitting on top of the parent core on the elevator paddle. Retighten the Kip Handle. The Separator Disks should protrude more for larger core diameters, and less for smaller diameter cores.



CHAPTER 8: CUT CORE HANDLING

Your A301 Core Cutting System includes the following cut core handling module.

Keep untrained personnel out of the working area of the cutting system. Serious personal injury could result from unexpected mechanical movement. The working area is defined as any area within arms reach of a system component.

8.1 ACCUMULATOR TABLE W/TRANSFER , CONVEYOR AND WASTE GATE

The A301 Transfer Table w/Waste Gate acceptes cut cores from the AutoLoader Core Tray and transfers them to the Accumulating Conveyor or Accululator Table. The waste Gate drops to discharge the trim and butt waste pieces to a Waste Bin.

Check to ensure that all personnel are clear of all system components before powering up the core cutting system. Unexpected machine movement could result in serious personal injury.

Keep hands and fingers away from the waste gate. The waste gate could move without warning, pinching your fingers or hand and causing severe injury.

8.1.1OPERATION

There are no user operating functions on the Transfer Table. The Waste Gate operates automatically to separate the trim and butt waste pieces from the usable cut cores.

Usable cut cores greater than the operator preset length are accumulated in the Autoloader tray and discharged to the Accumulator Table. The Accumulator Table has a photoelectric sensor which will pause the machine when the table is full.

Cut cores equal to the operator preset length or less will be discharged onto the conveyor and transfered to a customer supplied bin. When the conveyor is operating, the Accululator Table will tilt up to provide a backstop which the cut cores will ride against as they are transferred.

Notes:

Limited Warranty, Limited Remedies, and Disclaimer Of Liabilities

Seller warrants that the Goods will be of Seller's standard quality and free from defects in manufacturing and materials. This warranty shall extend for a period of one year from the date of delivery. Should any failure to conform to this warranty appear within that one year period, Buyer must give written notice and a specific description of such nonconformity to Seller's customer service representative within twenty (20) days of the discovery of such nonconformity or it shall be deemed to have been waived. Seller must be given the opportunity to inspect the Goods. Seller will, at its option, remedy any nonconformity by repairing any defective Goods, making available repaired or replacement Goods, or by the issuance of a credit for the defective Goods. Replacement of non conforming Goods means delivering to Buyer conforming Goods. It does not include any cost or liability for replacing the replacement Goods in or on any other product. Repair or replacement of defective Goods, or credit to the Buyer of the value thereof, does not extend the one year warranty period. **The foregoing warranty is in lieu of and excludes all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.** With respect to parts not manufactured by Seller, the warranty obligations of Seller shall in all respects conform and be limited to the warranty actually given to Seller by the supplier.

The remedies set forth above shall constitute buyer's exclusive remedies for Seller's breach of any warranty with respect to the Goods or any other liability of Seller to Buyer (other than warranties relating to title and infringement), including any arising out of the negligence of Seller, strict liability in tort or any other legal theory. Seller's liability hereunder shall not exceed the purchase price of the Goods sold by Seller to Buyer which are proved to be defective. In no event shall Seller be liable to Buyer or anyone claiming through Buyer for (and buyer agrees to hold Seller harmless against) any damages, whether direct, special, incidental or consequential, including lost profits, arising out of the sale, purchase or use of or inability to use any Goods, other than as expressly set forth herein.

Seller's warranty shall not be enlarged and no obligation or liability shall arise out of Seller's rendering of technical advice or services in connection with Buyer's purchase of the Goods.

In the event that Buyer provides Seller with specifications for the Goods to be sold hereunder, and requests that the Goods be produced in accordance with such specifications, Seller is under no duty to test, analyze, or study such specifications to determine whether they are appropriate for Buyer's needs. In such event, Seller makes no representation or warranty that the Goods produced in accordance with such specifications will be suitable for Buyer's application.

Any warranties specifically set forth herein, and any liability of Seller for any breach of warranty, are condition upon proper storage and use of the Goods, improper storage, maintenance, handling, installation, repair, alteration or use of the Goods will void all warranties contained herein.