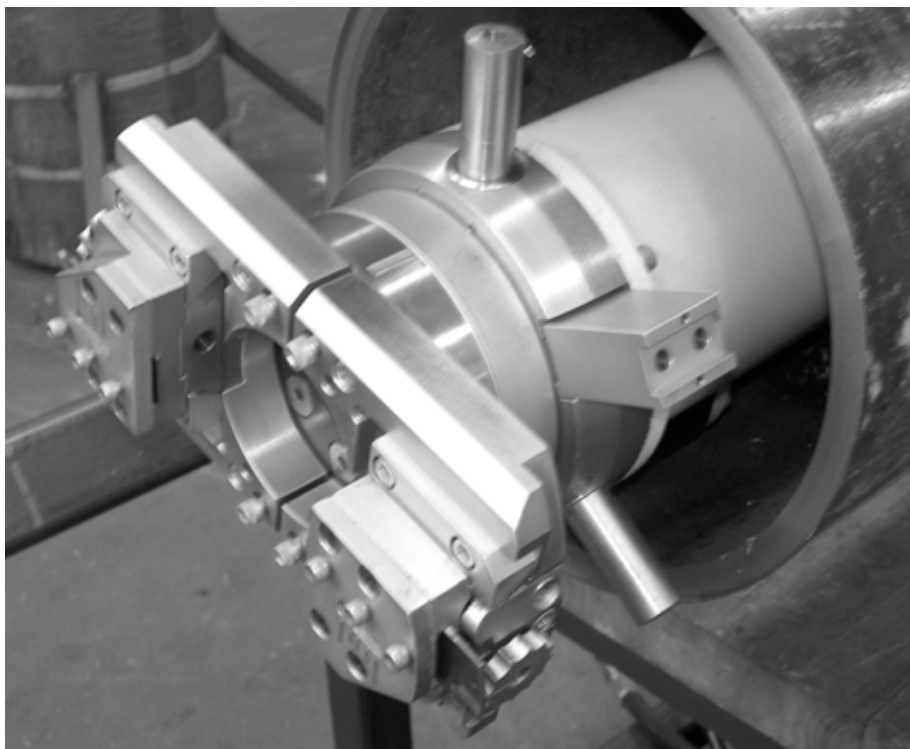




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# Internal Casing Cutter User's Manual



E.H. Wachs Company Part No. 05-048-MAN  
Rev. 0-0206, February 2006

Revision History:  
February 2006

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# Chapter 1

## About This Manual

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### PURPOSE OF THIS MANUAL

This manual explains how to operate and maintain the internal casing cutter system. It includes instructions for assembly, set-up, operation, and maintenance. It also contains parts lists, assembly diagrams, and troubleshooting instructions to help you order replacement parts and perform user-serviceable repairs.

Before operating your internal casing cutter, you should read through this manual and become familiar with all instructions. At a minimum, make sure you read and understand the following chapters:

- Chapter 1, About This Manual
- Chapter 2, Safety
- Chapter 3, Introduction to the Internal Casing Cutter
- Chapter 5, Operating Instructions.

If you will be performing service or repairs, make sure you read and understand these chapters:

- Chapter 1, About This Manual
- Chapter 4, Assembly and Disassembly
- Chapter 6, Routine Maintenance
- Chapter 7, Service and Repair.

You will also want to refer to Chapter 8, Parts Lists and Drawings.

### In This Chapter

PURPOSE OF THIS MANUAL

HOW TO USE THE MANUAL

SYMBOLS AND WARNINGS

MANUAL UPDATES

Throughout this manual, refer to this column for warnings, cautions, and notices with supplementary information.

---

## HOW TO USE THE MANUAL

This manual is organized to help you quickly find the information you need. Each chapter describes a specific topic on using or maintaining your internal casing cutter system.

Each page is designed with two columns. This large column on the inside of the page contains instructions and illustrations. Use these instructions to operate and maintain your internal casing cutter.

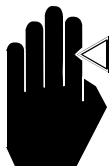
The narrower column on the outside contains additional information such as warnings, special notes, and definitions. Refer to it for safety notes and other information.

---

## SYMBOLS AND WARNINGS

The following symbols are used throughout this manual to indicate special notes and warnings. They appear in the outside column of the page, next to the section they refer to. Make sure you understand what each symbol means, and follow all instructions for cautions and warnings.

### WARNING



This symbol indicates a safety warning. A **warning** means that there is a risk of operator injury.

### CAUTION



This symbol indicates a caution alert. A **caution** means that there is a risk of damage to the equipment or to the component being serviced.

### NOTE



This symbol indicates a user notice. **Notices** provide additional information to supplement the instructions, or tips for easier operation.

---

## MANUAL UPDATES AND REVISION TRACKING

Occasionally, we will update manuals with improved operation or maintenance procedures, or with corrections if necessary. Revised chapters will be available for customers. If you receive revised chapters for your manual, remove the old chapters from your binder and replace them with the new chapters.

When a manual is revised, we will update the revision history on the title page and at the bottom of the pages in the revised chapters. It is important to put the current title page with the revision history in your manual. This will help you make sure you have all current information.

You may have factory service or upgrades performed on your internal casing cutter. If this service changes any technical data or operation and maintenance procedures, we will include revised sections of the manual when we return the equipment to you. Remove the old chapters from your manual and replace them with the revised chapters.

Current versions of E.H. Wachs Company manuals are also available in PDF format. You can request an electronic copy of this manual by emailing customer service at [sales@wachSCO.com](mailto:sales@wachSCO.com).





## Chapter 2

# Safety

.....

The E.H. Wachs Company takes great pride in designing and manufacturing safe, high-quality products. We make user safety a high priority in the design of all our products.

Read this chapter carefully before operating your internal casing cutter. It contains important safety instructions and recommendations.

---

### OPERATOR SAFETY

Follow these guidelines for safe operation of your internal casing cutter.

- **READ THE OPERATING MANUAL.** Make sure you understand all setup and operating instructions before you begin.
- **INSPECT MACHINE AND ACCESSORIES.** Before starting the machine, look for loose bolts or nuts, leaking lubricant, rusted components, and any other physical conditions that may affect operation. Properly maintaining the machine can greatly decrease the chances for injury.
- **ALWAYS READ PLACARDS AND LABELS.** Make sure all placards, labels, and stickers are clearly legible and in good condition. You can purchase replacement labels from E.H. Wachs Company.
- **KEEP CLEAR OF MOVING PARTS.** Keep hands, arms, and fingers clear of all rotating or moving parts.

### In This Chapter

OPERATOR SAFETY

SAFETY LABELS

MACHINE SAFETY

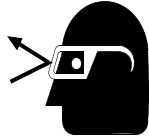


Look for this symbol throughout the manual. It indicates a safety warning.


Always turn machine off before doing any adjustments or service.

- **SECURE LOOSE CLOTHING AND JEWELRY.** Secure or remove loose-fitting clothing and jewelry, and securely bind long hair, to prevent them from getting caught in moving parts of the machine.
- **KEEP WORK AREA CLEAR.** Keep all clutter and nonessential materials out of the work area. Only people directly involved with the work being performed should have access to the area.

## Protective Equipment Requirements


	<b>WARNING</b> Always wear impact resistant eye protection while operating or working near this equipment.
---	---

For additional information on eye and face protection, refer to Federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

	<b>CAUTION</b> Personal hearing protection is recommended when operating or working near this tool.
---	--

Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises, and resonant structures can increase the noise level in the area. For additional information on hearing protection, refer to Federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure and ANSI S12.6 Hearing Protectors.

## Operating Recommendations

	<p><b>CAUTION</b></p> <p>Some people experience chronic pain in their hands and arms when performing repetitive tasks or operating vibrating equipment. Repetitious, forceful exertion of the hands and arms can cause or aggravate disorders such as carpal tunnel syndrome and tendonitis.</p>
---	--

- Use minimum hand grip force.
- Keep your wrists straight.
- Avoid prolonged, continuous exposure to vibration.
- Avoid repeated bending of your wrists and hands.
- Keep your hands and arms warm and dry.

---

## SAFETY LABELS

There is no safety labeling on the internal casing cutter machine.

---

## MACHINE SAFETY

To avoid damaging your internal casing cutter, follow these usage guidelines.

- Make sure the hydraulic supply is within the specification—8-15 gpm (30-57 lpm) at 2000 psi (140 bar).
- Operating the drive motor and clamping leg drives while greasing them
- Keep the caps on the hydraulic connectors at all times when the hoses are not attached.
- Always store all components in the control station when they are not in use.



## Chapter 3

# Introduction to the Internal Casing Cutter

---

Read this chapter carefully to become familiar with the components of your Internal Casing Cutter (ICC) system.

The ICC system includes two cutting heads and two slide assemblies for easy setup and optimized cutting performance on a variety of casing diameters. An integrated control station allows remote setup and operation of the cutting units.

---

### USAGE AND APPLICATIONS

The Internal Casing Cutter system performs fast, clean, spark-less cold cutting of well casings from 7 inches to 13-3/8 inches in diameter. A hydraulic powered, self-centering clamping mechanism provides easy setup at any location within the casing. Remote machine control and a self-advancing trip mechanism mean that cutting is fast and nearly automatic.

The ICC is designed to be operated in a vertical casing. A lift hook on the cutting head allows you to lower the head with a cable or chain to the desired cutting location within the casing.

---

### CUTTER COMPONENTS

There are two cutting machines supplied with the ICC system. One is for cutting casings from 7" to 9-5/8" in diame-

### In This Chapter

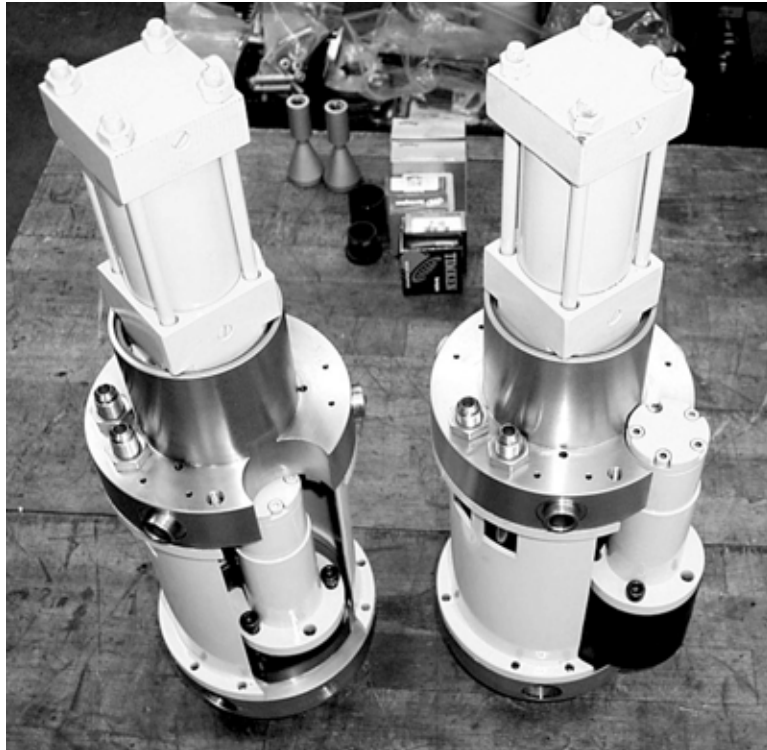
USAGE AND APPLICATIONS

CUTTER COMPONENTS

TOOLING/SETUP COMPONENTS

CONTROL STATION

ter, the other is for casings 10-3/4" to 13-3/8" in diameter. The cutting machines are identical except for an external gearbox on the larger one. This gearbox reduces the rotation speed, so that the linear speed of the cutting tool is approximately the same for large as well as small casings.

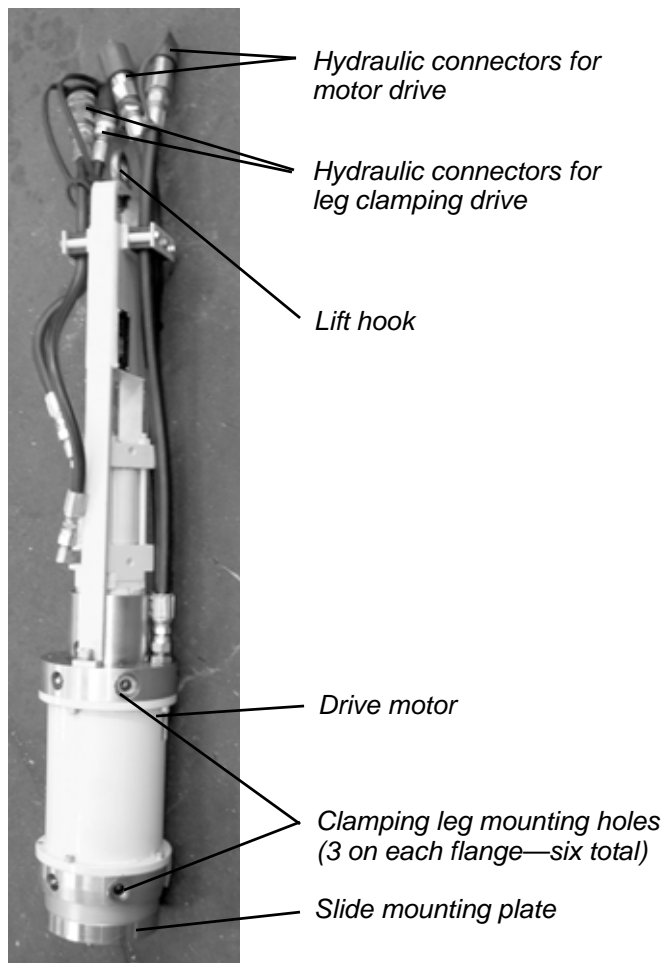


*Figure 3-1. The cutting machine for smaller casings is on the left, and the machine for larger casings (with the external gearbox) is on the right. (Hoses and lift assemblies have been removed.)*

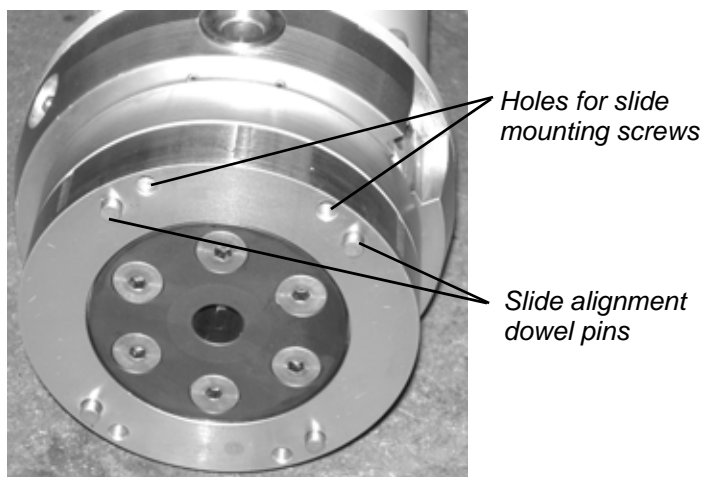
The cutting and clamping drive hoses have different sized connectors, so it is not possible to hook them up incorrectly.



Each machine has two sets of hydraulic hoses, one for rotating the cutting drive and one for engaging the clamping legs. These hoses and other components are illustrated in Figure 3-2.



*Figure 3-2. The photo illustrates the components of the ICC cutting machine.*



*Figure 3-3. The face of the cutting machine is shown.*

## TOOLING/SETUP COMPONENTS

The slides, tooling, and accessories are stored in a toolbox that is kept in the control station.



*Figure 3-4. Slides and tooling are stored in the toolbox. Keep the box strapped securely in the control station when you are not using the machine.*

### Slides

There are two sets of slides provided with the ICC.

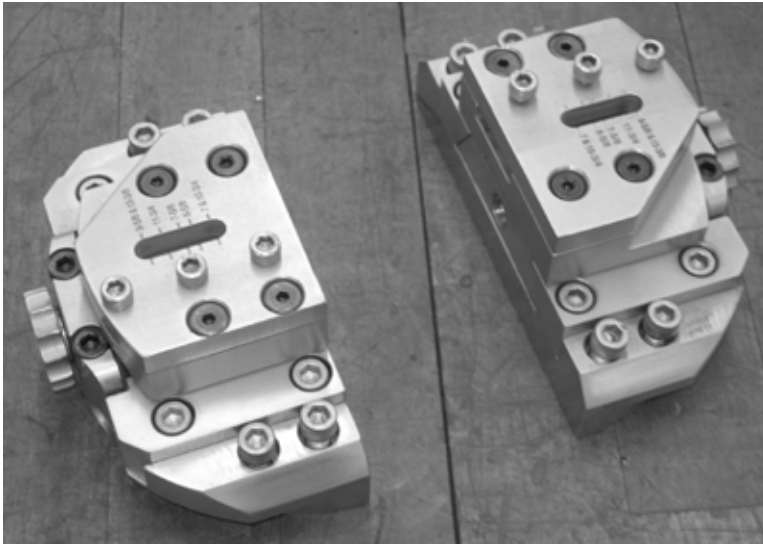
The standard set of slides, shown in Figure 3-5, is used with the smaller cutting machine for the following casing diameters:

- 7"
- 7-5/8"
- 8-5/8"
- 9-5/8"

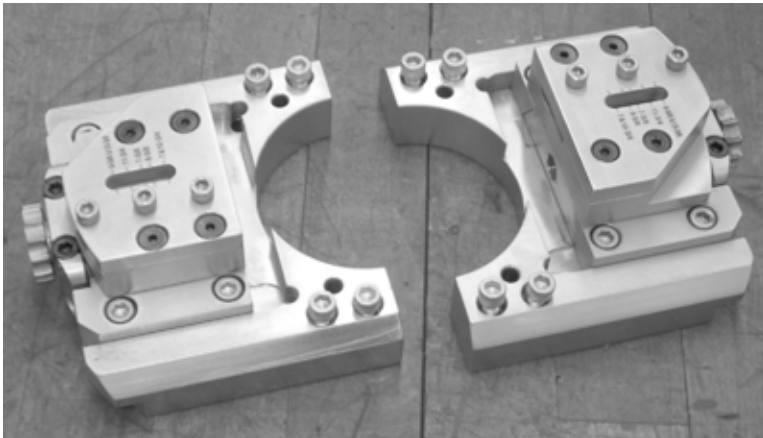
The extended slides, shown in Figure 3-6, are used for the following casing diameters:

- 10-3/4"
- 11-3/4"
- 13-3/8"





*Figure 3-5. The standard slides are used for cutting smaller sized casings.*



*Figure 3-6. The extended slides have longer mounting plates to position the slides for cutting larger sized casings.*

### Clamping Legs

The clamping legs hold and center the ICC cutting machine inside the casing. There are seven different sized legs, one for each casing size. Six legs of each size are provided; three legs are mounted in each of the two flanges on the cutting machine.



*Figure 3-7. The four shorter clamping legs are used with the smaller cutting machine for the four smaller casing diameters.*



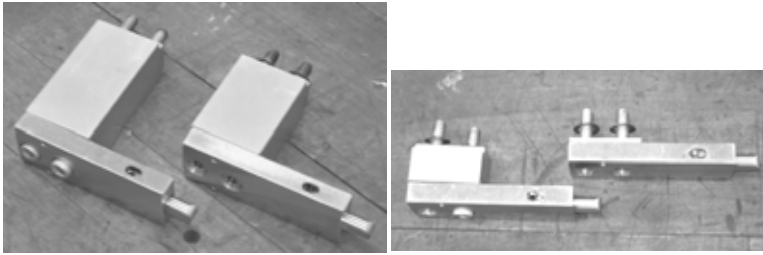
*Figure 3-8. The three larger legs are used with the large cutting machine for the three larger casing diameters.*

### Trip Assemblies

There are four trip assemblies included with the ICC machine. Each assembly has a different sized spacer to operate the trip on different casing sizes.

No spacer	7" and 7-5/8" casings
5/8" spacer	8-5/8" and 9-5/8" casings

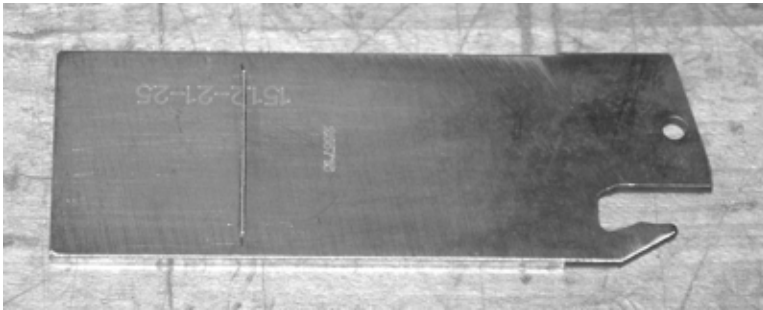
1-7/8" spacer	10-3/4" and 11-3/4" casings
2-1/2" spacer	13-3/8" casing



*Figure 3-9. There are four trip assemblies with different spacer sizes to operate the trip on different sized casings.*

## Cutting Tools

A supply of cutting tools is provided with the ICC. The indicator line is used to align the tool in the slide for the size of casing you are cutting.

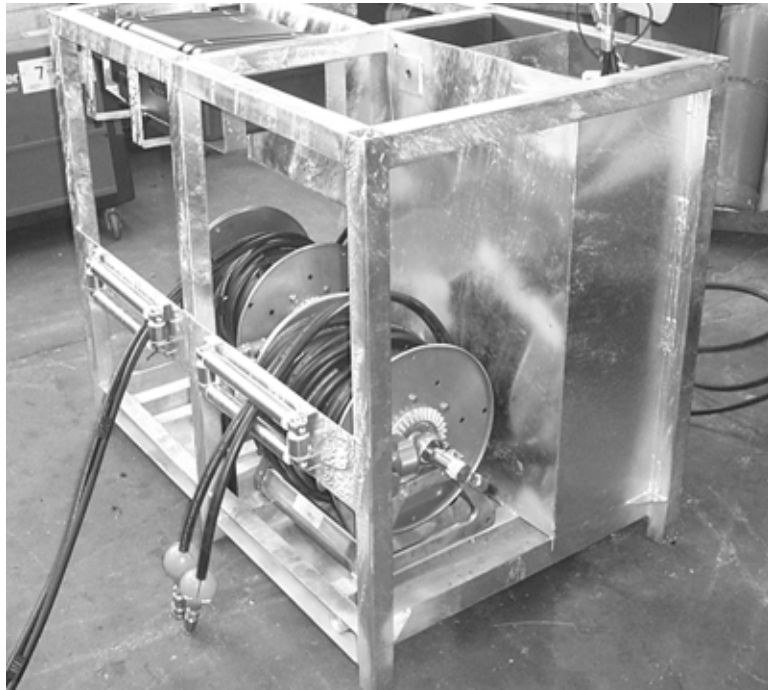


*Figure 3-10. The indicator line on the tool is used to align it in the tool block on the slides.*

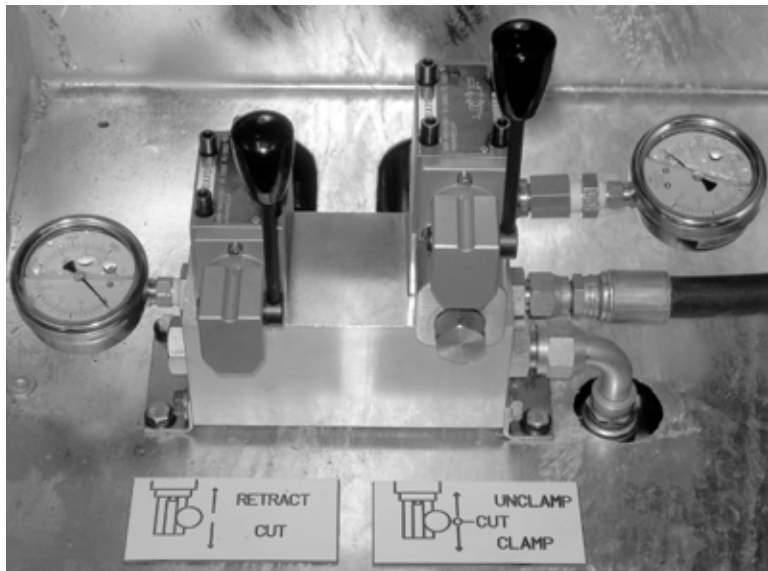
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## CONTROL STATION

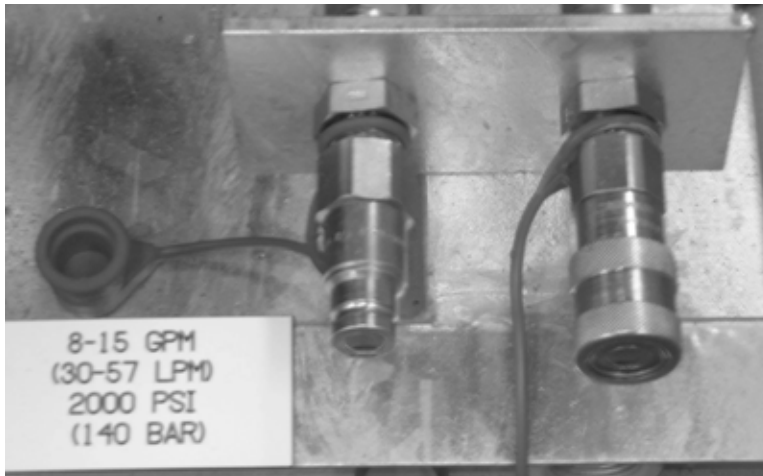
The control station includes the hydraulic machine controls, hose reels for the hydraulic hoses to the cutting heads, and storage compartments for all the ICC machine components.



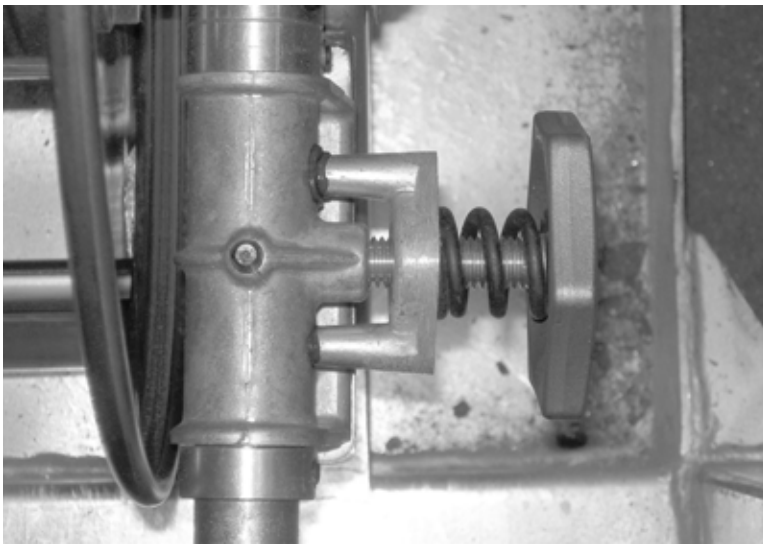
*Figure 3-11. The photo shows the hose side of the control station.*



*Figure 3-12. The hydraulic controls are on the front side of the control station. The lever on the left controls the cutting rotation drive, and the lever on the right controls the clamping leg mechanism.*



*Figure 3-13. The hydraulic power system is connected to the control station for supplying power to the cutting machine.*



*Figure 3-14. The hose reels have hand knobs to adjust the tension on the reel.*



## Chapter 4

# Assembly, Disassembly, and Storage

.....

The ICC system is stored and shipped in the control station, which is designed with compartments for all system components.

---

### STORING COMPONENTS IN THE CONTROL STATION

The slides, clamping legs, trip assemblies, and all tooling are stored in the toolbox on the control station. Make sure the toolbox is securely latched and is strapped into its compartment before moving or transporting the system.



*Figure 4-1. Store all tooling and accessories in the toolbox on the control station.*

### In This Chapter

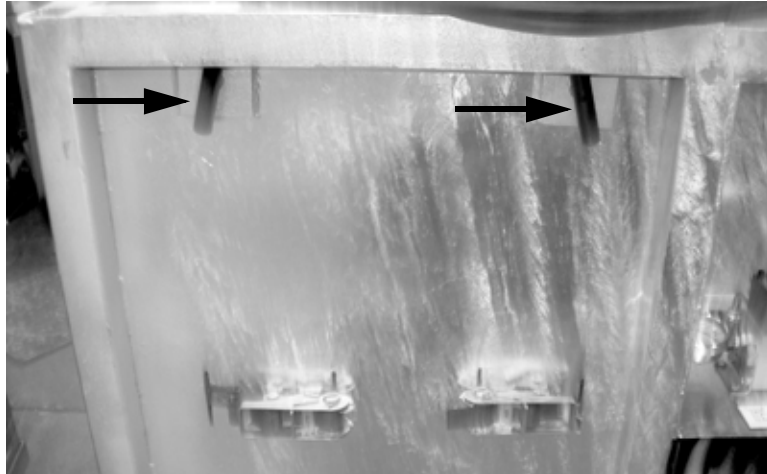
STORING COMPONENTS

LONG-TERM STORAGE

SHIPPING

The cutting machines are stored vertically in their compartments, with the cutting face down. Use the following procedure to store the cutting machines.

1. Remove the storage rod from the cutting machine compartment.



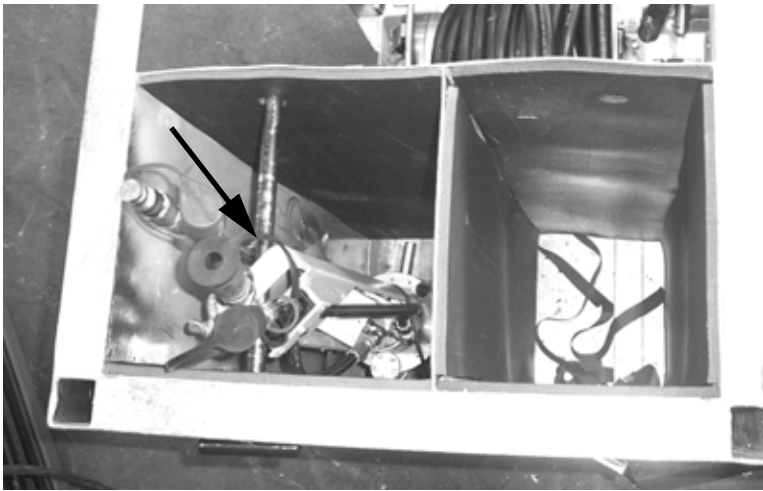
*Figure 4-2. Remove the storage rod for the compartment you will be putting the cutting machine into.*

2. Using a strap or chain, attach a lift to the lift hook on the top end of the cutting machine.
3. Lift the cutting machine over the control station and lower it carefully into one of the storage compartments.
4. The bottom end of the machine will rest on the bottom of the compartment. Rotate the machine so that you will be able to insert the storage rod through the lift hook.
5. Put the storage rod through the side of the compartment and through the lift hook.

You can put either cutting machine into either storage compartment.







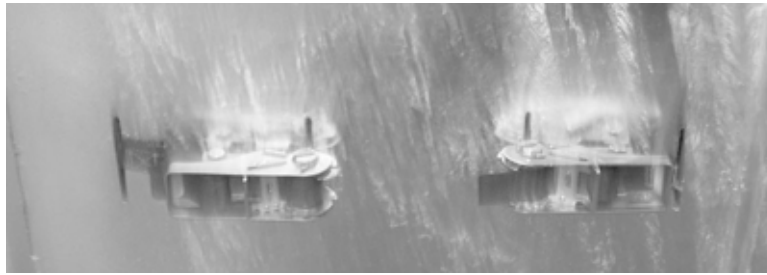
*Figure 4-3. Insert the storage rod through the top of the cutting machine to secure it in the compartment.*

6. Secure the locking pin in the end of the rod on the other side of the compartment.



*Figure 4-4. Secure the pin to hold the storage rod in place.*

7. Wrap the storage strap around the cutting machine and feed the end of the strap through the slot in the storage compartment.



*Figure 4-5. After putting the strap around the cutting machine in the compartment, feed it through the clamp and tighten it to hold the machine securely.*

---

## LONG-TERM STORAGE

- If the system has been used in a salt-water environment, spray it thoroughly with fresh water to remove any salt residue.
- Lubricate all system components according to the instructions in Chapter 6.
- Make sure the covers are secured fastened onto all hydraulic hose connectors.
- Apply a coating of machine oil to all bare metal components to prevent corrosion.

---

## SHIPPING

The ICC system can be shipped as stored in the control station. Make sure all components are secured in their compartments.

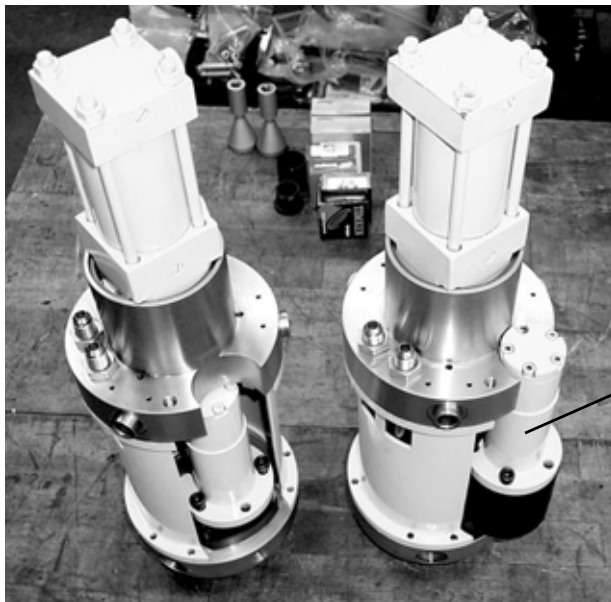
## Chapter 5

# Operating Instructions

---

### SELECTING AND CONFIGURING THE CUTTING MACHINE

1. Select the appropriate cutting machine for the size of the casing you are cutting:



*Large cutter has external gearbox*

**Small Cutter:**  
7" casing  
7-5/8" casing  
8-5/8" casing  
9-5/8" casing

**Large Cutter:**  
10-3/4" casing  
11-3/4" casing  
13-3/8" casing

*Figure 5-1. Cutting machines and associated casing sizes.*

### In This Chapter

SELECTING AND CONFIGURING THE CUTTING MACHINE

INSTALLING THE SLIDES AND TOOLS

ATTACHING THE HYDRAULIC HOSES

POSITIONING THE MACHINE FOR CUTTING

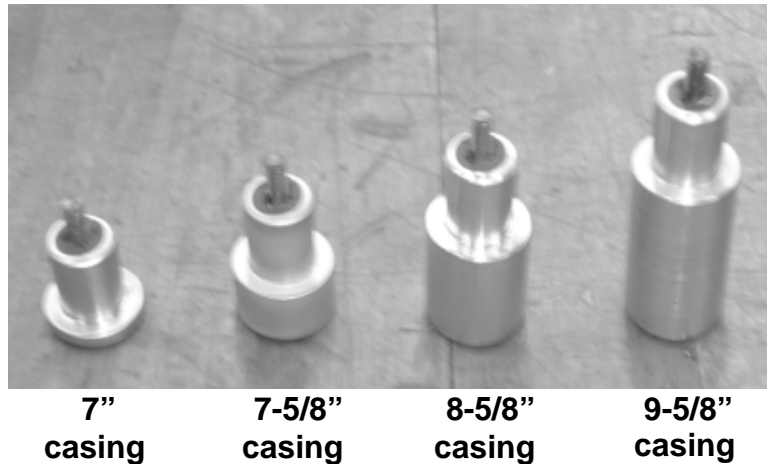
PERFORMING THE CUT

REMOVING THE MACHINE

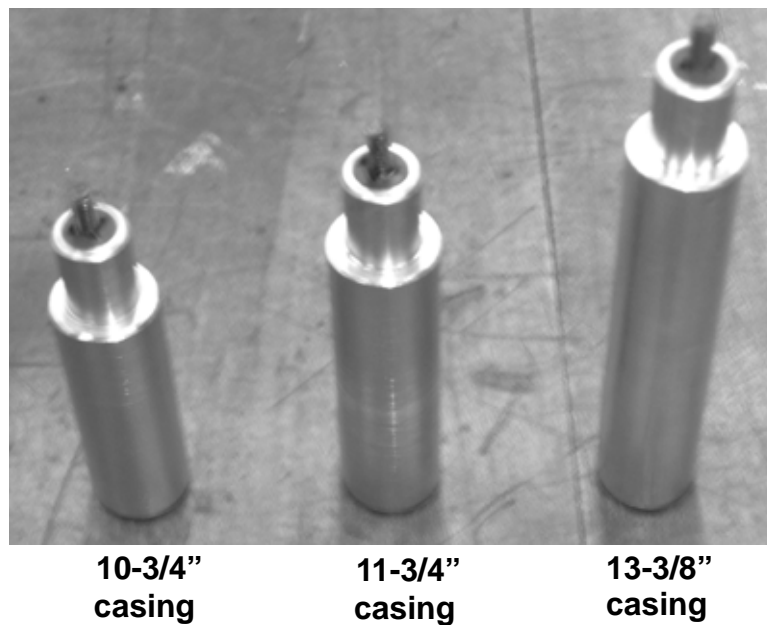
SETUP CHART

**CAUTION:** Make sure you use six legs of the same size. Having an incorrect leg will cause the machine to mount off-center and damage the slides or other components.

2. Select the clamping legs for the size of the casing. You will use six legs, three in each of the flanges.

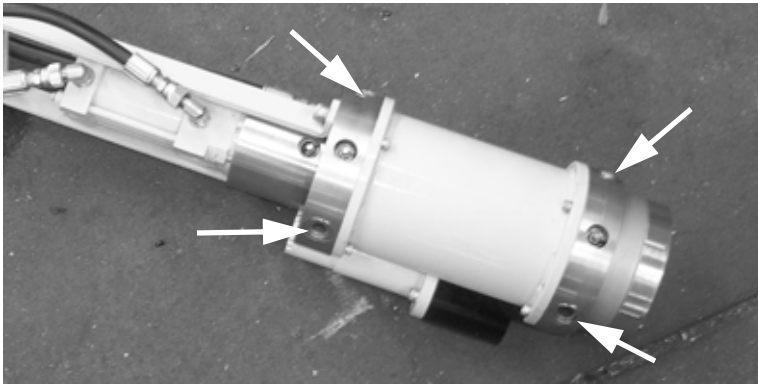


*Figure 5-2. Clamping legs for the small cutting machine.*



*Figure 5-3. Clamping legs for the large cutting machine.*

3. Screw one of the legs into each clamping leg mounting hole on the cutting machine. Insert a 9/64" hex wrench into the end of each leg and tighten it securely.

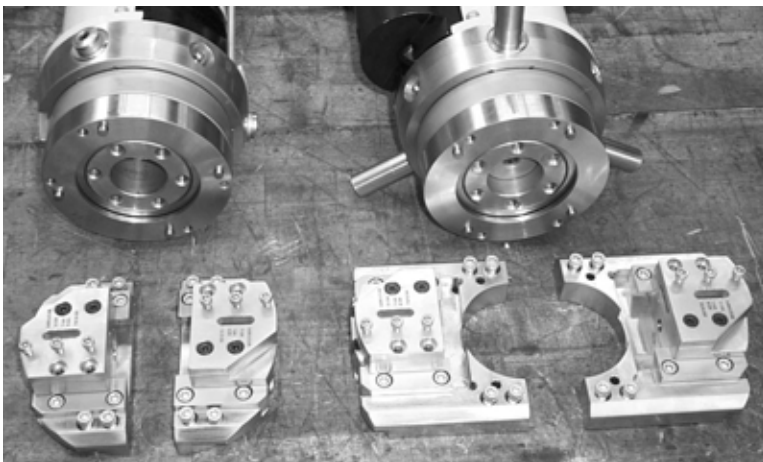


*Figure 5-4. There are three holes for clamping legs on each flange of the cutting machine.*

---

## INSTALLING THE SLIDES AND TOOLING

Use the standard slides with the small cutting machine, and the extended slides with the large cutting machine.



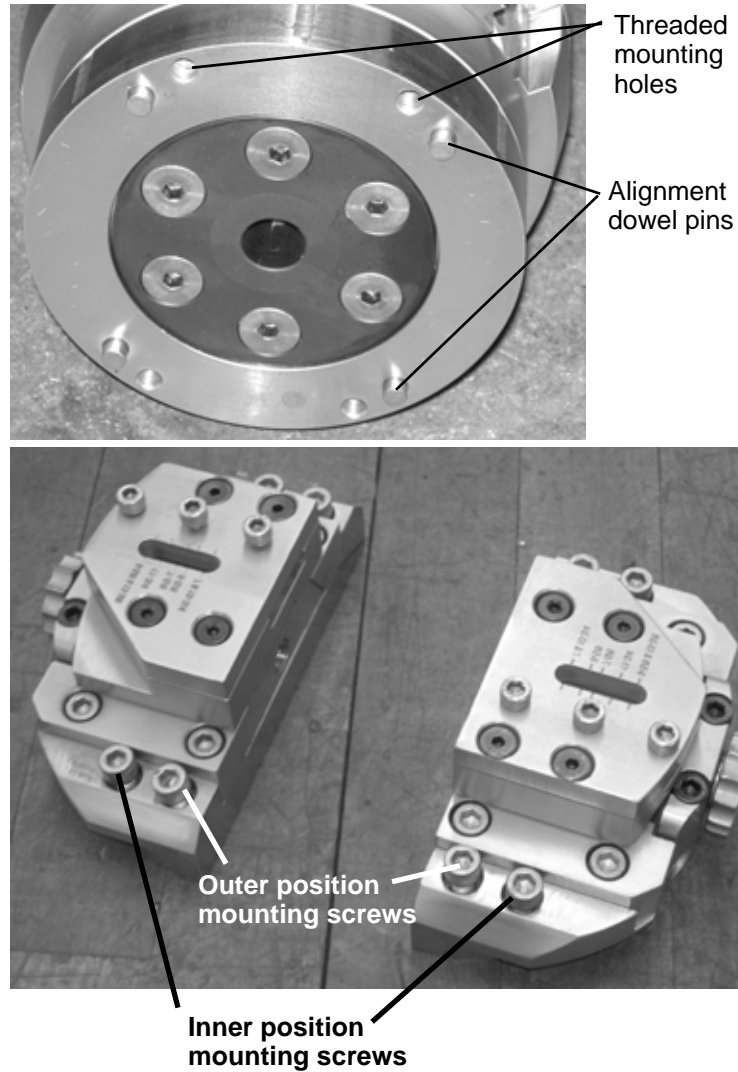
*Figure 5-5. The standard slides are used with the small cutting machine (left), and the extended slides are used with the large cutting machine (right).*

There are two mounting positions on the cutting head: inner (with the slides mounted closer to the center), and outer (with the slides mounted further from the center).

If the screws for the mounting position you want will not go into the holes, you have the wrong alignment hole in the back of the slide on the dowel pin. Re-position the slide and insert the screws.



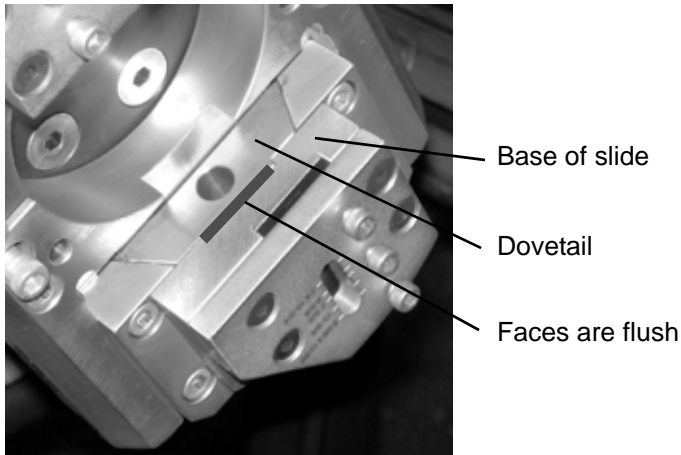
Each slide has a pair of inner position mounting screws and outer position mounting screws. There are two sets of alignment holes on the back of each slide that fit onto the dowel pins in the cutting machine at the appropriate location.



*Figure 5-6. Put the slides onto the dowel pins for the required position, then tighten the correct pair of screws on each slide.*

When the slides are mounted in the inner position, they will be about 1/8 inch apart in the center. In the outer position, they will be about 1-1/2 inch apart.

1. Take out the set of slides for the cutting machine you are using. Set them on a level work surface.
2. Turn the star wheel until the base of the slide is flush with the mounting dovetail.



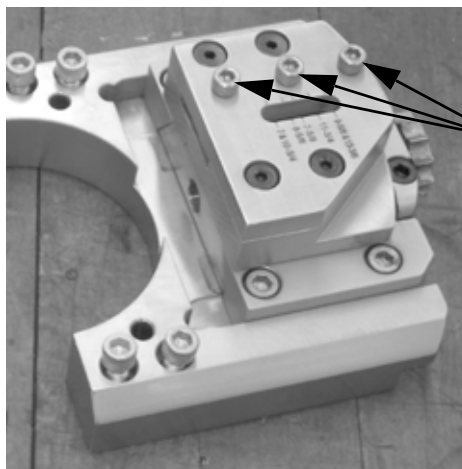
*Figure 5-7. Pre-position the slide and dovetail to be flush for the starting position.*

3. Turn the star wheel 1/2 turn in the forward (counter-clockwise) direction to take any slop out of the gear.
4. If necessary, loosen the three tool mounting screws on the top of the slide.



**CAUTION:** Make sure both slides are mounted in the same position—inner or outer. Mounting slides in different positions can cause severe damage to the machine.

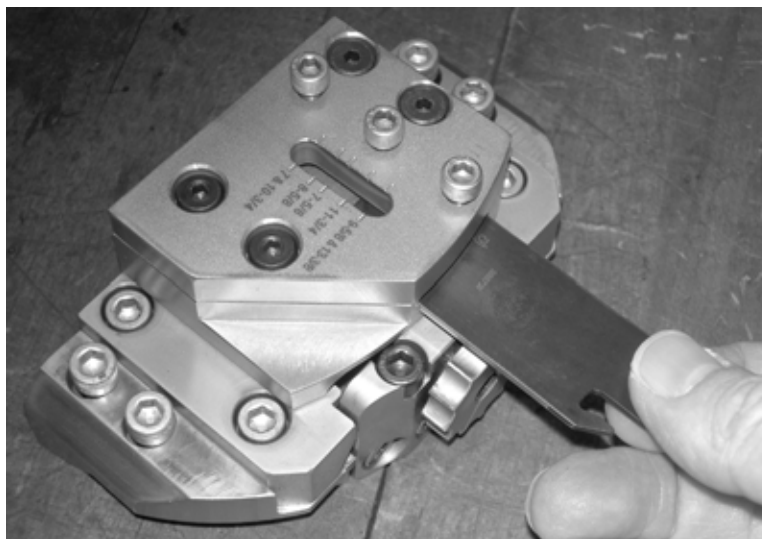
The tool will only fit into the slide in one orientation.



Three screws hold the tool in the slide

*Figure 5-8. Loosen the screws before inserting the tool into the slide.*

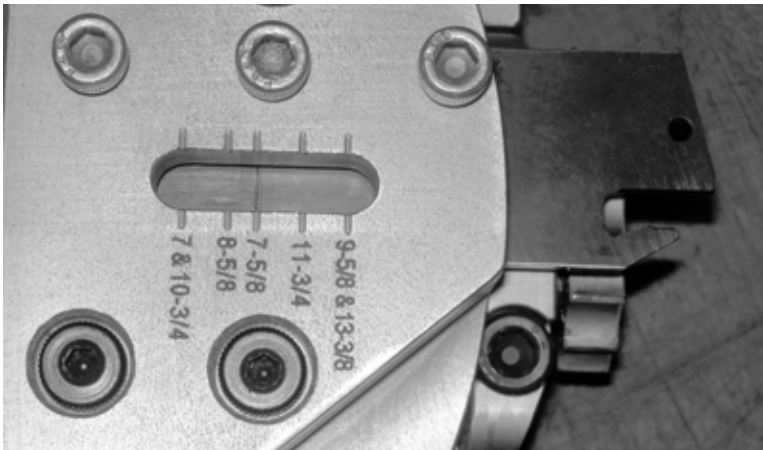
5. Insert the tool into the slide above the star wheel, with the engraved red line up.



*Figure 5-9. Insert the tool into the slide with the engraved red line up.*

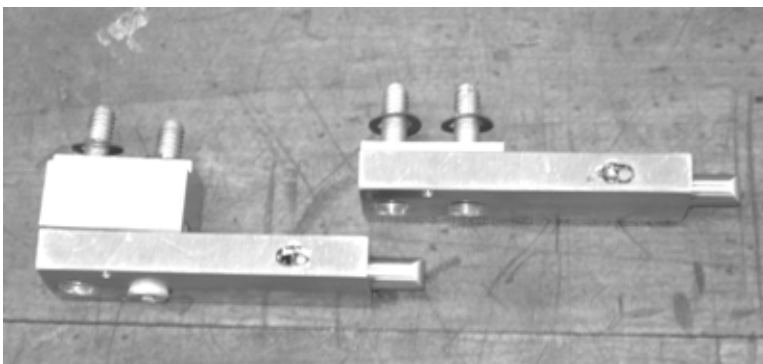
6. Looking down through the slot in the top of the slide, align the red line on the tool with the mark for the size of casing you are cutting.





*Figure 5-10. Align the tool so that the red line is on the mark for the casing size you are cutting (7-5/8" in this photo).*

7. Tighten the three screws on top of the slide to secure the tool.
8. Repeat steps 2-7 for the other slide.
9. Mount both slides on the cutting machine in the correct position—inner or outer—for the casing size you are cutting.
10. Select the appropriate trips for the casing size you are cutting. There are four different trip assemblies with different sized spacers.



**5/8" spacer:**  
8-5/8" casing  
9-5/8" casing

**No spacer:**  
7" casing  
7-5/8" casing

*Figure 5-11. Trips for the small cutting machine.*

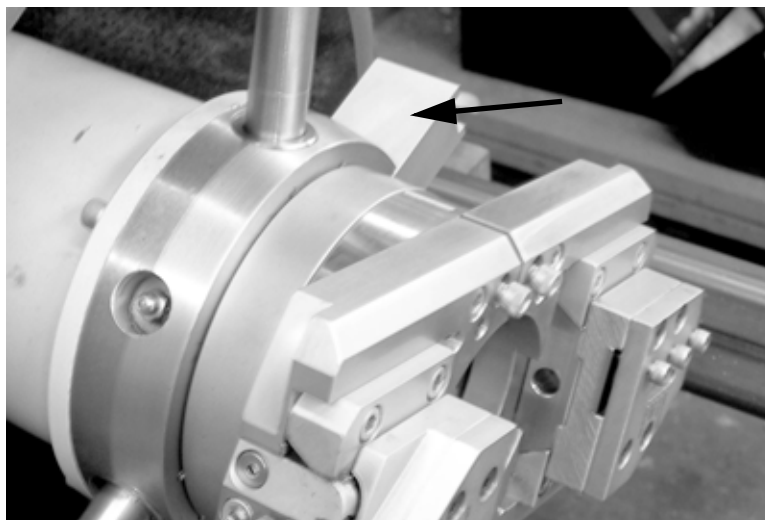


**2-1/2" spacer:**  
13-3/8" casing

**1-7/8" spacer:**  
10-3/4" casing  
11-3/4" casing

*Figure 5-12. Trips for the large cutting machine.*

11. Attach the trip to the cutting machine flange so that the trip pin will contact the star wheel. Tighten the two screws to secure the trip assembly.

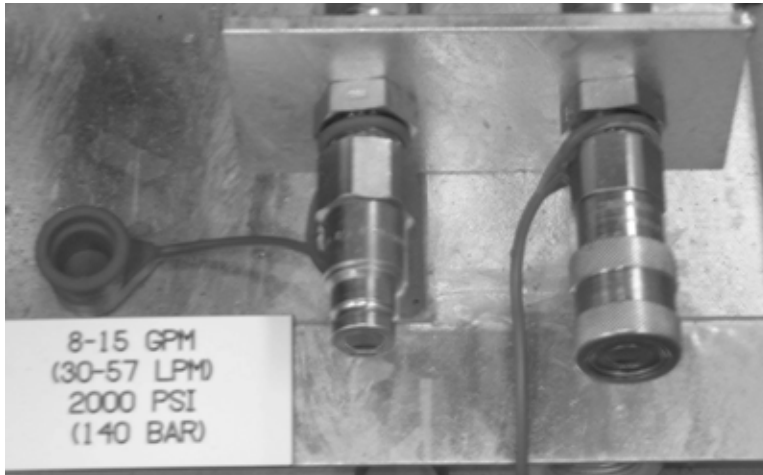


*Figure 5-13. The trip assembly fastens to the front flange of the cutting machine with two screws.*

12. Rotate the star wheel so that one point of it is perpendicular to the trip pin.

## ATTACHING THE HYDRAULIC HOSES

1. Attach the hoses from the hydraulic power unit (HPU) to the connectors on the front of the control station (beneath the hydraulic controls).

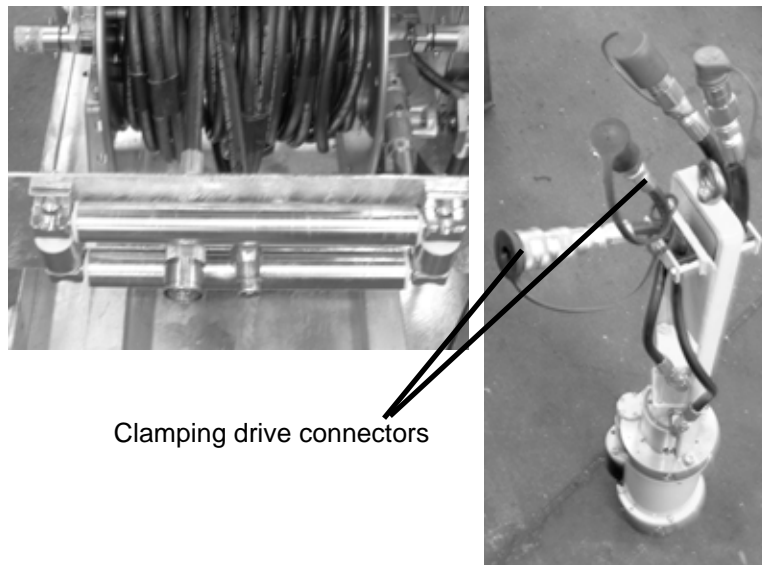


*Figure 5-14. The hydraulic connectors to the HPU are under the hydraulic controls on the front of the control station.*

2. The hoses for the clamping drive are on the left reel in the back of the control station. Pull out the hoses and attach them to the clamping drive connectors on the cutting machine.



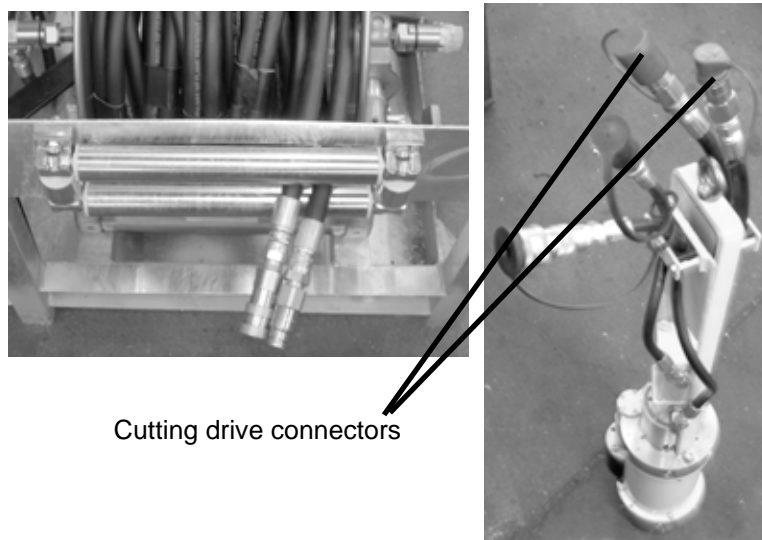
Make sure both hydraulic control levers are in the center (disengaged) position before attaching the hoses.



Clamping drive connectors

*Figure 5-15. The clamping drive hoses are on the left hose spool at the back of the control station. They connect to the larger pair of connectors on the cutting machine.*

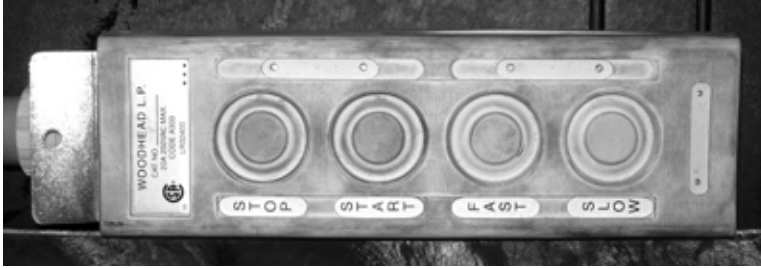
3. The hoses for the cutting drive are on the right reel in the back of the control station. Pull out the hoses and attach them to the cutting drive connectors on the cutting machine.



Cutting drive connectors

*Figure 5-16. The cutting drive hoses are on the right hose spool at the back of the control station. They connect to the smaller pair of connectors on the cutting machine.*

4. Power on the HPU and set it to operate at the specific flow rate and pressure (8-15 gpm at 2000 psi; 30-57 lpm at 140 bar).
5. Use the power pendant supplied with the HPU to control the hydraulic power.



*Figure 5-17. HPU power pendant.*

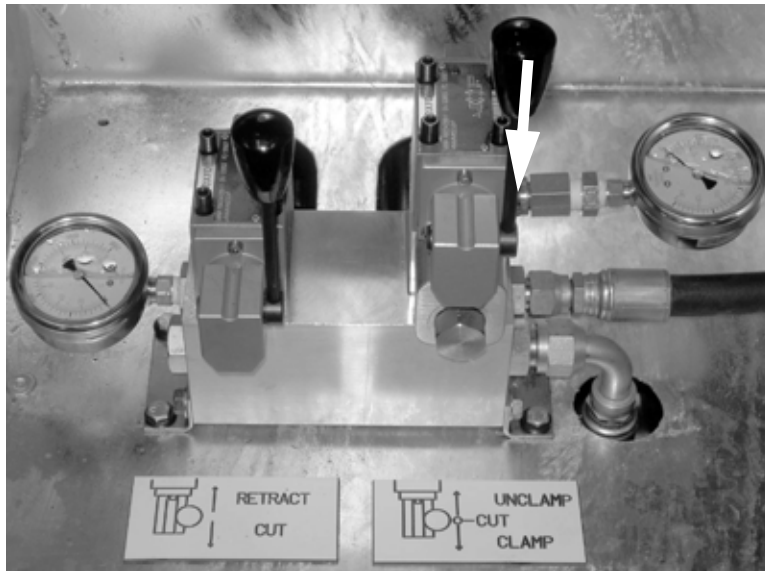
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## POSITIONING THE MACHINE FOR CUTTING

When lifting the ICC cutting machine, be sure not to set it upright so that its weight is resting on the slides. This could damage the slides.

1. Attach the lift to the lift ring on top of the cutting machine.
2. Lift the machine carefully until it is suspended freely.
3. Position the cutting machine over the casing. Guide it carefully into the casing while slowly lowering it.
4. Lower the machine to the desired position while carefully feeding the hydraulic hoses into the casing.
5. When the machine is at the cutting position, pull the clamping hydraulic lever toward you to engage the clamping feet.
6. Watch the gauge on the Clamping lever. When the pressure on the gauge jumps, the feet will be clamped against the inside wall of the casing.

Be careful NOT to push the Clamping lever forward and loosen the clamping legs.



*Figure 5-18. Pull the Clamping lever toward you to clamp the machine in place inside the casing. Return the lever to the center position.*

7. Return the Clamping lever to the center position.

## PERFORMING THE CUT

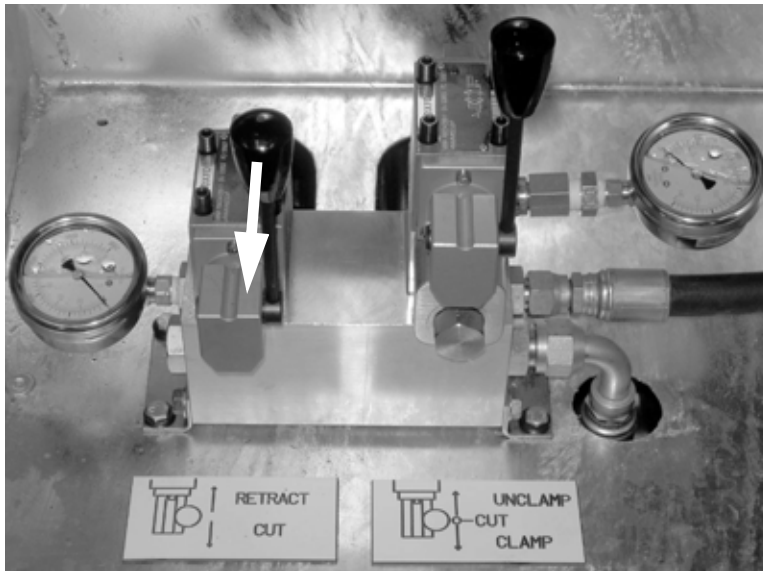
Make sure you have the casing above the cut position supported with a crane or lift so that it is pulled free when the cut is complete.

The Clamping hydraulic lever must be in the center position (labeled "CUT") before you start cutting.

1. Pull the Retract/Cut hydraulic lever toward you to engage the machine in the forward (cutting) direction.

It is recommended that you time the cut so that you will know how long to retract the slides once the cut is complete.





*Figure 5-19. Pull the Retract/Cut lever toward you to start the machine. Make sure the Clamping lever on the right is in the center position.*

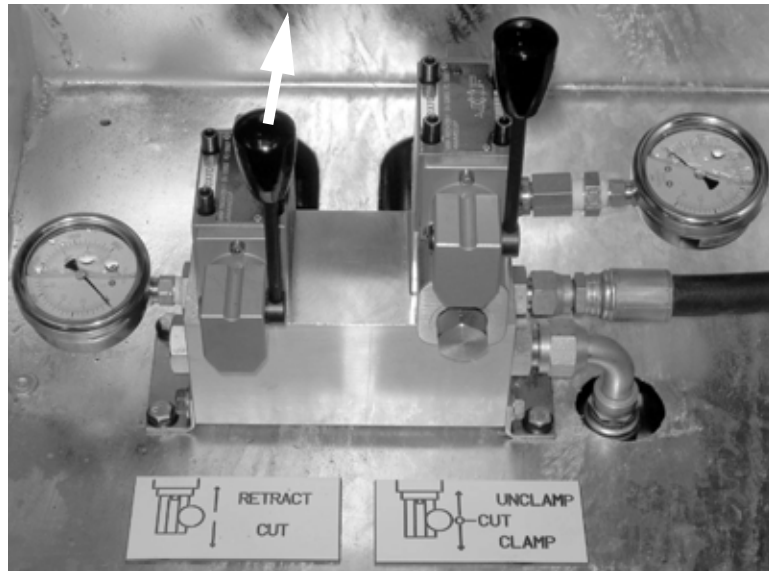
2. Watch the pressure gauge on the Retract/Cut lever as the machine advances. The pressure will increase as the tool contacts the casing and begins to cut.
3. When the cut is complete, the pressure on the Retract/Cut gauge will drop. Release the Retract/Cut lever.
4. Make sure the casing is cut through and that you can lift it free. If you cannot lift it, engage the Retract/Cut lever again to fully penetrate the casing.

---

## REMOVING THE MACHINE

You can either leave the casing in place while you remove the machine, or lift the casing out with the machine still clamped in place. Either way, first retract the slides to avoid damaging the machine when you remove it.

1. Once the cut is complete, push the Retract/Cut lever away from you to retract the slides. Run the machine about 30 seconds longer than the cutting time, to make sure the slides are fully retracted.



*Figure 5-20. Retract the slides by pushing the Retract/Cut lever away from you and running the machine 30 seconds longer than the cutting time.*

#### Removing the Machine from the Casing

If you are lifting the casing out with the machine in place, lift it carefully without moving the Clamping hydraulic lever.

#### Removing the Casing with the Machine

If you are lifting the ICC machine out of the casing, first make sure the chain or cable supporting the ICC machine is not slack.



## SETUP CHART

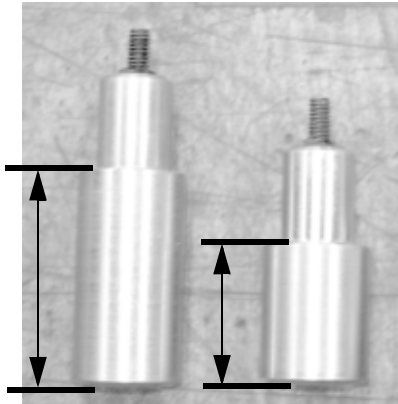
The following chart describes all machine configuration options for each casing size. Use it as a reference for setting up the machine.

Casing Size	Cutting Machine	Clamping Legs	Slides	Slide Mount Position	Trip Assembly
7"	Small	0.15"	Standard	Inner	No spacer
7-5/8"	Small	0.50"	Standard	Inner	No spacer
8-5/8"	Small	0.94"	Standard	Outer	5/8" spacer
9-5/8"	Small	1.45"	Standard	Outer	5/8" spacer
10-3/4"	Large	2.05"	Extended	Inner	1-7/8" spacer
11-3/4"	Large	2.51"	Extended	Inner	1-7/8" spacer
13-3/8"	Large	3.32"	Extended	Outer	2-1/2" spacer

**Table 1: Machine configurations for all casing sizes**

NOTE: The clamping leg lengths refer to the lengths of the feet, as shown in Figure 5-21.

The feet are the large diameter shafts that extend beyond the flanges of the cutting machine.



*Figure 5-21. The legs lengths refer to the length of the larger-diameter feet.*



## Chapter 6

# Routine Maintenance

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The internal casing cutter is a durable system with little required maintenance. Lubricate mechanical components regularly.

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### MACHINE LUBRICATION

- Every time you use one of the cutting machines, apply grease to all 4 grease fittings on the machine.
- NOTE:** Connect the machine to hydraulic power and operate the appropriate drive while putting in the grease.
- Grease the fittings on the hydraulic hose reel shafts and the hose reel tension knob fittings.
  - Every time you assemble the slides, apply oil to the machine ways.
  - You can dip the entire cutting machine in light oil or diesel fuel to prevent corrosion.

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### HYDRAULIC SYSTEM

- Check all hoses and connections for leaks or damage each time you use the machine.
- Check that the hydraulic flow and pressure are correct each time you run the machine.

### In This Chapter

MACHINE LUBRICATION

HYDRAULIC SYSTEM



## Chapter 7

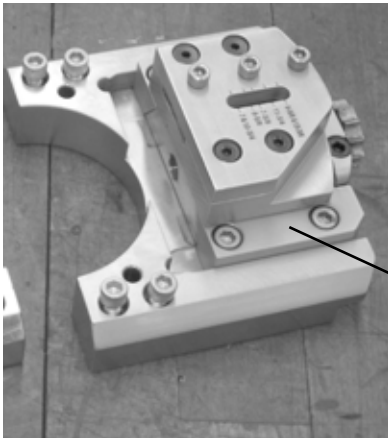
# Service and Repair

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### ADJUSTING THE STARWHEEL TENSION

The starwheel tension is adjusted by adding or removing shims under the gib plate, as shown in Figure 7-1. The starwheel should be set to about 30 lb-in tension.

- If the starwheel is too loose, take out a shim.
- If the starwheel is too tight, add a shim.



*Loosen this gib to add or remove shims*

*Figure 7-1. Add or remove shims under the gib to adjust the starwheel tension.*

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### INSPECT TOOL SLIDE FEED NUT AND SCREW

You should periodically disassemble the slide to access the feed nut and screw. These components are wear items and

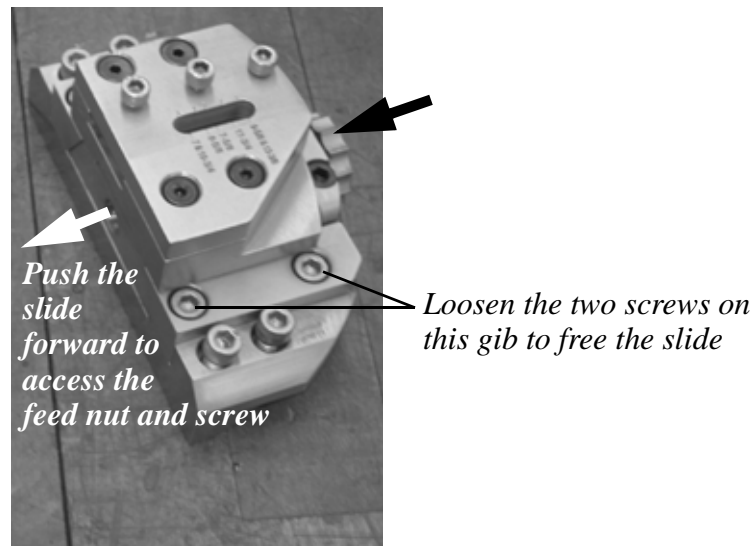
### In This Chapter

MECHANICAL PROBLEMS

INSPECT TOOL SLIDE FEED  
NUT AND SCREW

will occasionally need to be replaced. Check for any wear that allows backlash on the screw.

To access the feed nut and screw, loosen the gib as shown in Figure 7-2 and retract the slide.



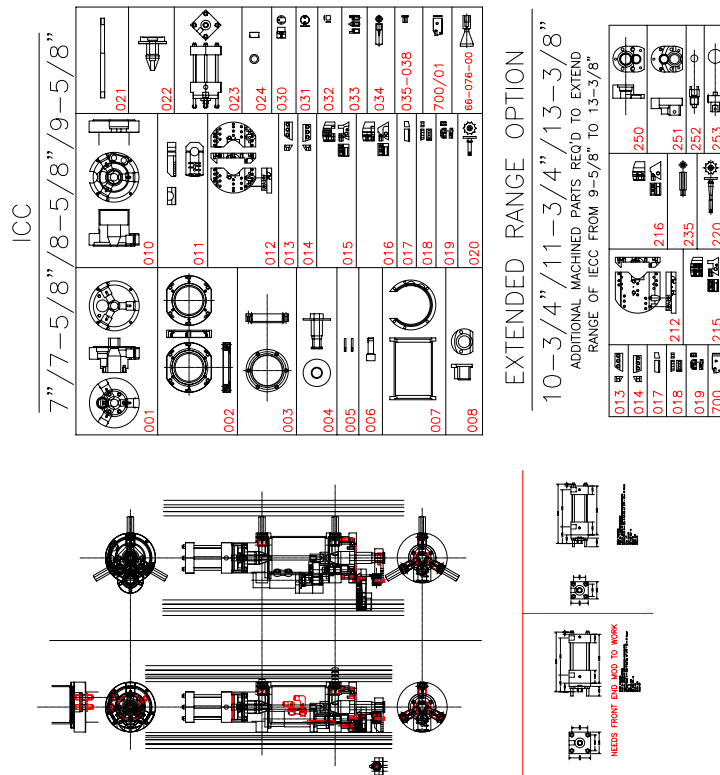
*Figure 7-2. Loosen the gib screws and push the slide forward to check the feed nut and screw.*

If there is significant wear on the nut or screw, you should replace the worn component. See Chapter 8 for parts information, and Chapter 10 for ordering instructions.

## Chapter 8

# Parts Lists and Drawings

The drawing below is a reference for major parts of the ICC cutting machines. Refer to the parts lists in this chapter for ordering and maintenance.



### In This Chapter

BASE CUTTING MACHINE PARTS

SMALL CUTTING MACHINE

LARGE CUTTING MACHINE

TOOLING

EMERGENCY REPAIR PARTS

OVERHAUL/REBUILD KIT

CONTROL STATION

## BASE CUTTING MACHINE PARTS

The following parts are used in both cutting machine assemblies.

### Manufactured Parts

Qty	Part No.	Description
1	05-048-001	HOUSING, FRONT
1	05-048-002	RING, ROTATING
1	05-048-003	GEAR, RING
1	05-048-004	RETAINER, BEARING
1	05-048-006	GEAR, PINION
1	05-048-007	DRUM, MAIN BODY
1	05-048-010	HOUSING, REAR
1	05-048-021	ROD, DRAWBAR
1	05-048-022	CONE, CYLINDER MOUNT
1	05-048-023	MODIFICATION, CLAMP CYLINDER
6	05-048-024	GUIDE, CLAMP LEG
1	05-048-025	MODIFICATION, DRIVE MOTOR
6	02-078-034	LEG, CHUCK
1	05-048-100	BRACKET, LIFTING
2	05-048-101	BRACE, LIFTING BRACKET
1	05-048-102	WELDMENT, LIFTING BRACKET
1	66-076-00	CONE

### Purchased Parts

Qty	Part No.	Description
1	SMALLY WH-325	RING, RETAINING 3.25 INTERNAL
1	LAMINA A-125F	MOTOR, DRIVE
1	SHEFFER #2MHFX2.0625CCK	CYLINDER, CLAMP
1	IKO # CRBH 7013 AUU TI	BEARING, SEALED CROSS ROLLER
1	TORRINGTON #AW10AK	BEARING, SEALED BALL
1	TORRINGTON #IRA-1012	BEARING, SEALED NEEDLE
1	TORRINGTON #JT-149	RACE, NEEDLE
6	LEE # LC-063L-1-S	SPRING, 1.0 DIA. X 3/4" LG Compression
1	MCMaster CARR #63785A151	TOOL BOX
1	MCMaster CARR #5709A52	HEX KEY SET, L-KEY
1	MCMaster CARR #1446K1	GREASE, TUBE BEL RAY (Synthetic Molyube 65)
1	MCMaster CARR #3103T31	EYEBOLT, 3/8-16 THD
1	PARKER #6 CC50X	LONG ELBOW
1	PARKER #6 C50X	SHORT ELBOW
2	PARKER #6 WTX	BULKHEAD UNION
1	PARKER #8250-4	1/2" NPT Female Coupler
1	PARKER #8010-4	1/2" NPT Female Nipple
2	GATES #G25100-0408	1/2" NPT MALE HOSE END (1/4" ID HOSE)
2	GATES #G25100-0608	1/2" NPT MALE HOSE END (3/8" ID HOSE)
2	GATES #4657-1551	XXX", M2T MEGAFLEX
2	GATES #4657-1554	XXX", M2T MEGAFLEX
6	GATES #G25170-0606	FEMALE JIC HOSE END (3/8" ID HOSE)
1	BRENNAN #6801-06-06	DASH 6 ORB TO DASH 6 MALE JIC
1	BRENNAN #6801-L-06-06	DASH 6 ORB TO DASH 6 MALE JIC, LONG
2	GATES #G25170-0406	FEMALE JIC HOSE END (1/4" ID HOSE)



## Fasteners

Qty	Part No.	Description
2	91274A308	SHCS, 3/8-16 x 1" LG
6	91274A172	SHCS, 1/4-20 x 1" LG.
8	91274A168	SHCS, 1/4-20 x 7/8" LG
6	92210A581	FHCS, 5/16-18 x 3/4" LG.
1	98380A542	PIN, DOWEL 1/4 x 1" LG.
8	98380A537	PIN, DOWEL 1/4 x 1/2" LG.
18	92383A702	PIN, ROLL 1/8 x 1-1/4" LG.
1	99129A310	NUT, 3/8-16 HEAVY HEX
3	98370A019	WASHER, 3/8 HEAVY

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**SMALL CUTTING MACHINE**

The parts listed in this section are specific to the small cutting machine.

## Manufactured Parts

Qty	Part No.	Description
1	05-048-005	ADAPTER, DRIVE
1	05-048-008	MOUNT, MOTOR
2	05-048-011	HOUSING, TRIP
2	05-048-012	PLATE, SLIDE
2	05-048-013	GIB, LEADING
2	05-048-014	GIB, TRAILING
2	05-048-015	SLIDE, MALE
2	05-048-016	NUT, SLIDE
1	05-048-017A	SPACER, TRIP
2	05-048-018	STARWHEEL, FEEDSCREW
2	60-119-00	PLATE, FEED SCREW
8	05-048-020	MODIFICATION, SHIM (60-322-00)
2	05-048-026	PIN, TRIP
2	05-048-027	PLATE, TOOL COVER
1	05-048-028A	PLATE, TOOL HOLDER - CLOSE
1	05-048-028B	PLATE, TOOL HOLDER - FAR
6	02-078-035/8	FOOT, 7" THROUGH 9-5/8" CHUCK

## Purchased Parts

Qty	Part No.	Description
24	MCMaster CARR #94800A700	NUT, PUSH -8 SCREW
12	MCMaster CARR #94800A720	NUT, PUSH -1/4 SCREW
2	LEE # LC-051D-12-M	SPRING, .300 DIA. X 1-1/8" LG

## Fasteners

Qty	Part No.	Description
2	91274A272	SHCS, 5/16-18 x 2-3/4" LG.
2	91274A180	SHCS, 1/4-20 x 1-1/2" LG
8	91274A172	SHCS, 1/4-20 x 1" LG
10	91274A168	SHCS, 1/4-20 x 7/8" LG
4	91274A160	SHCS, 1/4-20 x 5/8" LG
6	92562A234	SHCS, 10/24 x 1/2" LG.
24	91274A072	SHCS, 8-32 x 1" LG.
4	93615A412	LHCS, 1/4-20 x 5/8" LG
8	90298A535	1/4 x 3/8 SHOULDER BOLT
4	90298A542	1/4 x 1" SHOULDER BOLT
2	90145A473	PIN, DOWEL 1/8 x 3/4" LG.

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## LARGE CUTTING MACHINE

The parts listed in this section are specific to the large cutting machine.

## Manufactured Parts

Qty	Part No.	Description
2	05-048-011	HOUSING, TRIP
2	05-048-013	GIB, LEADING
2	05-048-014	GIB, TRAILING
2	05-048-015	SLIDE, MALE
2	05-048-016	NUT, SLIDE
1	05-048-017B	SPACER, TRIP
1	05-048-017C	SPACER, TRIP
2	05-048-018	STARWHEEL, FEEDSCREW
2	60-119-00	PLATE, FEED SCREW
2	05-048-212	PLATE, SLIDE
8	05-048-020	MODIFICATION, SHIM (60-322-00)
2	05-048-026	PIN, TRIP
2	05-048-027	PLATE, TOOL COVER
1	05-048-028A	PLATE, TOOL HOLDER - CLOSE
1	05-048-028B	PLATE, TOOL HOLDER - FAR
6	02-078-235/7	FOOT, 10-3/4" - 13-3/8" CHUCK

## Purchased Parts

Qty	Part No.	Description
18	MCMASTER CARR #94800A700	NUT, PUSH -8 SCREW
12	MCMASTER CARR #94800A720	NUT, PUSH -1/4 SCREW
2	LEE #LC-051D-12-M	SPRING, .300 DIA (25 LBS @ SET)
2	SKF #6001-2RSH	BEARING, SEALED BALL
1	SKF #61805-2RS1	BEARING, SEALED BALL
1	SPIROLOX #RR-145	RING, RETAINING 1.46 INTERNAL

## Fasteners

Qty	Part No.	Description
4	91274A268	SHCS, 5/16-18 x 2-1/2" LG.
2	91274A216	SHCS, 1/4-20 x 3-1/2" LG
2	91274A200	SHCS, 1/4-20 x 2-3/4" LG
8	91274A172	SHCS, 1/4-20 x 1" LG
8	91274A168	SHCS, 1/4-20 x 7/8" LG
4	91274A160	SHCS, 1/4-20 x 5/8" LG
6	92562A234	SHCS, 10/24 x 1/2" LG.
18	91274A072	SHCS, 8-32 x 1" LG.
4	93615A412	LHCS, 1/4-20 x 5/8" LG
8	90298A535	1/4 x 3/8 SHOULDER BOLT
4	90298A542	1/4 x 1" SHOULDER BOLT
3	98380A537	PIN, DOWEL 1/4 x 1/2" LG
2	90145A473	PIN, DOWEL 1/8 x 3/4" LG.

## TOOLING

Qty	Part No.	Description
4	05-048-700	TOOL, PARTING - CARBIDE
4	SANDVIK #151.2-21-25	HOLDER, PARTING
1	SANDVIK #5680 057-021	TOOL, WRENCH
	SANDVIK #N151.2-250-5E GRADE 2145	INSERT, PARTING TOOL
	SANDVIK #N151.2-250 02-9E GRADE 4125	INSERT, PARTING TOOL
10	SANDVIK #N151.2-250-7E GRADE 2145	INSERT, PARTING TOOL

## EMERGENCY REPAIR PARTS

### Small Machine

Qty	Part No.	Description
1	05-048-011	HOUSING, TRIP
1	05-048-026	PIN, TRIP
1	05-048-017A	SPACER, TRIP
6	02-078-035/8	FOOT, 7" THROUGH 9-5/8" CHUCK
24	MCMaster CARR #94800A700	NUT, PUSH -8 SCREW
2	MCMaster CARR #94800A720	NUT, PUSH -1/4 SCREW
1	LEE #LC-051D-12-M	SPRING, .300 DIA (25 LBS @ SET)
1	MCMaster CARR #5709A52	HEX KEY SET, L-KEY
2	91274A180	SHCS, 1/4-20 x 1-1/2" LG
2	91274A168	SHCS, 1/4-20 x 7/8" LG
24	91274A072	SHCS, 8-32 x 1" LG.
2	90145A473	PIN, DOWEL 1/8 x 3/4" LG.

### Large Machine

Qty	Part No.	Description
1	05-048-011	HOUSING, TRIP
1	05-048-026	PIN, TRIP
1	05-048-017B	SPACER, TRIP
1	05-048-017C	SPACER, TRIP
6	02-078-235/7	FOOT, 10-3/4" - 13-3/8" CHUCK
18	MCMaster CARR #94800A700	NUT, PUSH -8 SCREW
2	MCMaster CARR #94800A720	NUT, PUSH -1/4 SCREW
1	LEE #LC-051D-12-M	SPRING, .300 DIA (25 LBS @ SET)
1	MCMaster CARR #5709A52	HEX KEY SET, L-KEY
2	91274A216	SHCS, 1/4-20 x 3-1/2" LG
2	91274A200	SHCS, 1/4-20 x 2-3/4" LG
18	91274A072	SHCS, 8-32 x 1" LG.
2	90145A473	PIN, DOWEL 1/8 x 3/4" LG.

## OVERHAUL/REBUILD KIT

### Small Machine

Qty	Part No.	Description
1	05-048-003	GEAR, RING
1	05-048-006	GEAR, PINION
2	05-048-015	SLIDE, MALE
2	05-048-016	NUT, SLIDE
2	05-048-018	STARWHEEL, FEEDSCREW
2	60-119-00	PLATE, FEED SCREW
1	05-048-021	ROD, DRAWBAR
1	05-048-022	CONE, CYLINDER MOUNT
1	05-048-023	MODIFICATION, CLAMP CYLINDER
1	05-048-025	MODIFICATION, DRIVE MOTOR
6	02-078-034	LEG, CHUCK
1	66-076-00	CONE
1	SMALLY WH-325	RING, RETAINING 3.25 INTERNAL
1	LAMINA A-125F	MOTOR, DRIVE
1	SHEFFER #2MHFX2.0625CCK	CYLINDER, CLAMP
1	IKO # CRBH 7013 AUU TI	BEARING, SEALED CROSS ROLLER
1	TORRINGTON #AW10AK	BEARING, SEALED BALL
1	TORRINGTON #IRA-1012	BEARING, SEALED NEEDLE
1	TORRINGTON #JT-149	RACE, NEEDLE
6	LEE # LC-063L-1-S	SPRING, 1.0 DIA. X 3/4" LG Compression
1	MCMaster CARR #1446K1	GREASE, TUBE BEL RAY (Synthetic Molylyube 65)
2	91274A308	SHCS, 3/8-16 x 1" LG
2	91274A272	SHCS, 5/16-18 x 2-3/4" LG.
14	91274A172	SHCS, 1/4-20 x 1" LG.
16	91274A168	SHCS, 1/4-20 x 7/8" LG
4	91274A160	SHCS, 1/4-20 x 5/8" LG
6	92562A234	SHCS, 10/24 x 1/2" LG.
6	92210A581	FHCS, 5/16-18 x 3/4" LG.
4	93615A412	LHCS, 1/4-20 x 5/8" LG
8	90298A535	1/4 x 3/8 SHOULDER BOLT
4	90298A542	1/4 x 1" SHOULDER BOLT
8	98380A537	PIN, DOWEL 1/4 x 1/2" LG.
1	98380A542	PIN, DOWEL 1/4 x 1" LG
18	92383A702	PIN, ROLL 1/8 x 1-1/4" LG.
1	99129A310	NUT, 3/8-16 HEAVY HEX
3	98370A019	WASHER, 3/8 HEAVY

## Large Machine

Qty	Part No.	Description
1	05-048-003	GEAR, RING
1	05-048-006	GEAR, PINION
2	05-048-015	SLIDE, MALE
2	05-048-016	NUT, SLIDE
2	05-048-018	STARWHEEL, FEEDSCREW
2	60-119-00	PLATE, FEED SCREW
1	05-048-021	ROD, DRAWBAR
1	05-048-022	CONE, CYLINDER MOUNT
1	05-048-023	MODIFICATION, CLAMP CYLINDER
1	05-048-025	MODIFICATION, DRIVE MOTOR
6	02-078-034	LEG, CHUCK
1	66-076-00	CONE
1	05-048-252	GEAR, PINION - SPEED REDUCER
1	05-048-253	GEAR, RING - SPEED REDUCER
1	SMALLY WH-325	RING, RETAINING 3.25 INTERNAL
1	LAMINA A-125F	MOTOR, DRIVE
1	SHEFFER #2MHFX2.0625CCK	CYLINDER, CLAMP
1	IKO # CRBH 7013 AUU TI	BEARING, SEALED CROSS ROLLER
1	TORRINGTON #AW10AK	BEARING, SEALED BALL
1	TORRINGTON #IRA-1012	BEARING, SEALED NEEDLE
1	TORRINGTON #JT-149	RACE, NEEDLE
1	MCMASTER CARR #1446K1	GREASE, TUBE BEL RAY (Synthetic Molyube 65)
2	SKF #6001-2RSH	BEARING, SEALED BALL
1	SKF #61805-2RS1	BEARING, SEALED BALL
6	LEE # LC-063L-1-S	SPRING, 1.0 DIA. X 3/4" LG Compression
1	SPIROLOX #RR-145	RING, RETAINING 1.46 INTERNAL
2	91274A308	SHCS, 3/8-16 x 1" LG
4	91274A268	SHCS, 5/16-18 x 2-1/2" LG.
14	91274A172	SHCS, 1/4-20 x 1" LG.
16	91274A168	SHCS, 1/4-20 x 7/8" LG
4	91274A160	SHCS, 1/4-20 x 5/8" LG
6	92562A234	SHCS, 10/24 x 1/2" LG.
6	92210A581	FHCS, 5/16-18 x 3/4" LG.
4	93615A412	LHCS, 1/4-20 x 5/8" LG
8	90298A535	1/4 x 3/8 SHOULDER BOLT
4	90298A542	1/4 x 1" SHOULDER BOLT
11	98380A537	PIN, DOWEL 1/4 x 1/2" LG.
1	98380A542	PIN, DOWEL 1/4 x 1" LG
18	92383A702	PIN, ROLL 1/8 x 1-1/4" LG.
1	99129A310	NUT, 3/8-16 HEAVY HEX
3	98370A019	WASHER, 3/8 HEAVY

## CONTROL STATION

### Manufactured Parts

Qty	Part No.	Description
1	05-048-030	WELDMENT, CONTROL STATION
1	05-048-031	BASE PAN
2	05-048-032	PAN, ENDPLATE
4	05-048-033	GUSSET
4	05-048-034	2" x 2" x 3/16" x 23" ANGLE
2	05-048-035	1" NPT HALF COUPLING
2	05-048-036	2" x 2" x 3/16" x 30" ANGLE
1	05-048-037	HOSE REEL ANGLE
1	05-048-038	1.75" DIA. X 10 Ga. X 4" TUBE
6	05-048-039	2" X 2" X .12", 44" LONG TUBE
1	05-048-040	STORAGE TRAY
1	05-048-041	STORAGE TRAY BACK
1	05-048-042	STORAGE TRAY DIVIDER
2	05-048-043	CASE STRAP
2	05-048-044	CASE HANGER
2	05-048-045	HOSE ROLLER PLATE
1	05-048-046	HOSE REEL ANGLE
1	05-048-047	HOSE REEL ANGLE
1	05-048-048	HOSE REEL ANGLE
1	05-048-049	MANIFOLD SUPPORT
2	05-048-050	MANIFOLD SUPPORT ENDPLATE
1	05-048-051	BULKHEAD PLATE
1	05-048-052	CENTER BAR
4	05-048-053	HANGER PLATE
2	05-048-055	PIN, MACHINE HANGER
1	05-048-056	HOSE ASSEMBLY
1	05-048-057	HOSE ASSEMBLY
1	05-048-058	HOSE ASSEMBLY
1	05-048-059	HOSE ASSEMBLY
1	05-048-060	HOSE ASSEMBLY
1	05-048-061	HOSE ASSEMBLY
1	05-048-062	HOSE ASSEMBLY
1	05-048-063	HOSE ASSEMBLY
1	05-048-064	LABEL, CLAMP/UNCLAMP
1	05-048-065	LABEL, CUT/RETRACT
1	05-048-066	LABEL, FLOW INPUT

## Purchased Parts

Qty	Part No.	Description
2	05-048-150	HOSE REEL
2	05-048-151	RATCHET LOAD HUGGER
2	05-048-152	Roller Assembly
2	05-048-153	1" Nylon Hex Head Plug
2	05-048-154	3/8" Hyd. Hose Assembly
2	05-048-155	1/2" Hyd. Hose Assembly
1	05-048-HYD	Hydraulic Assembly
1	05-048-156	1/2" NPT Female Coupler
1	05-048-157	1/2" NPT Female Nipple
1	05-048-158	BLACK CASE w/ PADDED DIVIDER SET
2	05-048-159	FOAM PAD
1	09-025-00	Hydraulic Female Disconnect
1	09-026-00	Male Female Disconnect
1	09-027-00	Dust Cap
1	09-028-00	Dust Cap Female
2	21-018-00	QUICK PIN
4	62-121-00	LANYARD
12	17-014-00	STRIP GROMMET
3	05-048-160	ADAPTER, -10 MORB -10 MJ
1	05-048-161	ADAPTER, -10 MORB -8 MJ
2	05-048-162	ADAPTER, -08 MP -10 MJ BULKHEAD
1	05-048-163	TEE, -10 MJ -10 FJS -10MJ
2	05-048-164	NUT, -10 J
4	05-048-165	ADAPTER, -8 M ORB -8 MJ
1	05-048-166	ADAPTER, -8MJ -10MORB 90
1	05-048-167	3/8" DUAL HOSE STOP
1	05-048-168	1/2" DUAL HOSE STOP
1	05-048-169	ADAPTER, -10 MORB -04 FPT
1	07-161-00	PRESSURE GAUGE (200 PSI)


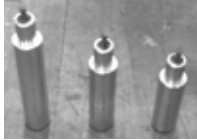





## Chapter 9

# Accessories and Spare Parts

There are no standard accessories for the internal casing cutter. All required components are included with the machine.

Table 1 lists recommended spare parts.

Part No.	Description	
<i>(no assembly number)</i>	Clamping legs for small cutting machine	
<i>(no assembly number)</i>	Clamping legs for large cutting machine	
<i>(no assembly number)</i>	Trip assemblies for small cutting machine	
<i>(no assembly number)</i>	Trip assemblies for large cutting machine	
05-048-700	Cutting tool	
05-048-011	Trip housing	<i>(no photo available)</i>

**Table 1: Spare Parts for the Internal Casing Cutter**

Part No.	Description	
05-048-026	Trip pin	<i>(no photo available)</i>
05-048-017A 05-048-017B 05-048-017C	Trip spacers	<i>(no photo available)</i>
02-078-035/8 02-078-035/7	Clamping foot, 7" through 9-5/8" Clamping foot, 10-3/4" through 13-3/8"	<i>(no photo available)</i>

**Table 1: Spare Parts for the Internal Casing Cutter**

# Chapter 10

## Ordering Information

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To place an order, request service, or get more detailed information on any E.H. Wachs Company products, call us at one of the following numbers:

U.S.                800-323-8185  
International: 847-537-8800

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### ORDERING REPLACEMENT PARTS

When ordering parts, refer to the parts lists in Chapter 8. Please provide the part description and part number for all parts you are ordering.

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### REPAIR INFORMATION

Please call us for an authorization number before returning any equipment for repair or factory service. We will advise you of shipping and handling. When you send the equipment, please include the following information:

- Your name/company name
- Your address
- Your phone number
- A brief description of the problem or the work to be done.

Before we perform any repair, we will estimate the work and inform you of the cost and the time required to complete it.

### In This Chapter

REPLACEMENT PARTS

REPAIR INFORMATION

WARRANTY INFORMATION

RETURN GOODS ADDRESS

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## **WARRANTY INFORMATION**

Enclosed with the manual is a warranty card. Please fill out the registration card and return to E.H. Wachs Company. Retain the owner's registration record and warranty card for your information.

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## **RETURN GOODS ADDRESS**

Return equipment for repair to the following address.

E.H. Wachs Company  
100 Shepard Street  
Wheeling, Illinois 60090 USA