S-5200/S-7200 GERBERcutter®

Operator's Manual

Gerber Garment Technology, Inc.
A Gerber Scientific Company

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Instructions are complete.	5	4	3	2	1
Illustrations are clear and helpful.	5	4	3	2	1
There are enough illustrations.	5	4	3	2	1
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Table of Contents

Chapter 1 (Cont'd)

Chapter 2

Basic Concepts

Chapter 3

Getting Started

Chapter 4

Maintenance

List of Illustrations

List of Tables

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Using this Manual

Inside this Manual

This manual contains information on using the GERBERcutter. It includes the following chapters:

Safety Precautions

This chapter details safety precautions you must follow when operating the GERBERcutter. **Read this section before you start cutting**.

System Description

This chapter provides an overview of the GERBERcutter, including major components and optional equipment.

Basic Concepts

This chapter discusses basic ideas you need to understand to use this system.

Getting Started

This chapter describes how to start up the system, cut fabric, and shut down the system.

Glossary

The Glossary lists terms you need to know.

Index

The Index provides an alphabetical listing of topics of interest in this manual.

Conventions

The following conventions are used throughout this manual:

Bold type highlights important information in the text.

Italic type highlights titles of other manuals.

NOTE: Notes contain important or helpful information.

CAUTION: **Cautions appear before procedures that could cause damage to equipment if you do not do them correctly.**

WARNING! Warnings tell you when you must follow a specific procedure or practice to avoid personal injury or death.

Customer Support

If a problem still exists after troubleshooting, call GGT Field Service Engineering for assistance. In North America, call **Customer Support** at **800-999-1448**. Outside North America, call your local service office.

Have the following information ready when you call:

1. Identify what equipment you are using.
2. Identify any special equipment or software you are using, such as the drill option.
3. Identify what software packages you are using. Include the software version numbers.

Safety Precautions

About This Chapter

This chapter details safety precautions you must follow when operating your GERBERcutter.

> **WARNING! Failure to follow these safety precautions could result in injury or death.**

Dangerous Procedure Warnings

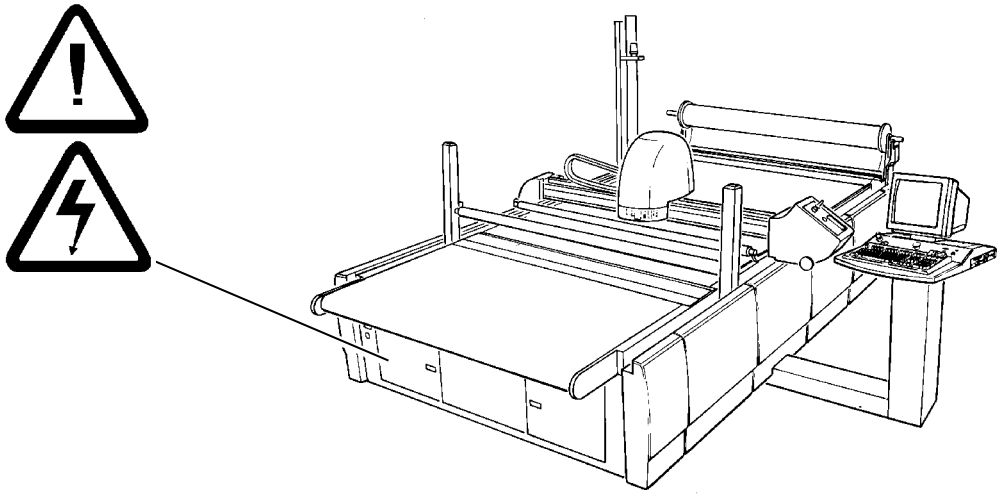
Warnings precede potentially dangerous procedures throughout this manual. Instructions contained in warnings must be followed. You also should employ all other safety precautions that you deem necessary for safe operation of the equipment in your operating environment.

Do Not Perform Maintenance Alone

Do not perform any maintenance on the equipment unless another person that can render first aid and resuscitation is present.

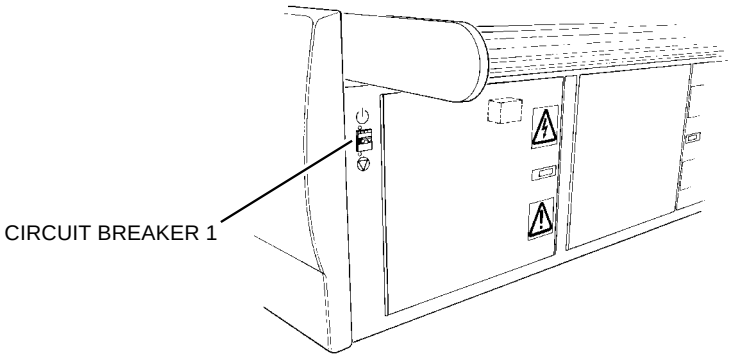
Live Circuits

High voltages exist inside the C-200B controller/vacuum electrics enclosure. Never perform any work inside the C-200B vacuum electrics enclosure. **There are no operator-serviceable parts.** Two power cables enter this enclosure: a three-phase cable for the vacuum generator system and a one-phase power cable for the C-200B controller. **Both** power cables must be disconnected before it is safe to work within the enclosure. There must be a main disconnect that meets local electrical codes for each power supply.



Turn Off Power Before Maintenance

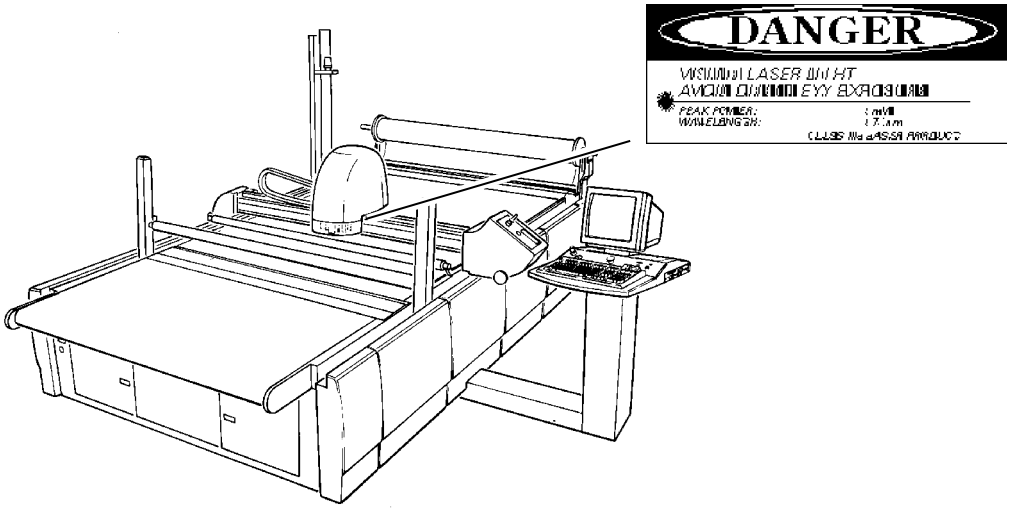
To prevent accidental start-up, always turn off all power by shutting off circuit breaker 1 before doing any maintenance.



Laser Origin Light

The origin light in the cutter head uses a laser light that points toward the cutting surface. When viewed as intended (by looking at the dot projected on the material to be cut), the laser should pose no hazard to operators. However, the origin light is a Class IIIa laser product, with a peak power of 5 mW at a wavelength of 670 nm. Unless you wear protective glasses, never look directly at the laser beam; doing so may cause temporary, or even permanent, damage to your eyes. Direct, bright reflections from the laser may also be harmful. Remove all highly-reflective material (such as jewelry and mirrors) from the cutting surface before turning on the origin light. Turn off the origin light before performing maintenance on your GERBERcutter.

WARNING! Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



Moving Machinery

Keep hands away from the resealer, and other moving machine parts to avoid personal injury. Make sure there is no one else near the table when you are operating the GERBERcutter.

Replacing Parts

Report any broken or missing parts to your service representative. Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification of the equipment.

Knife Blade

The knife blade is very sharp. Be extremely careful when working near the knife blade.

Clothing

Loose fitting clothing, dangling necklaces and ties, loose jewelry, and long hair can be a hazard when working around machinery.

Compressed Air

Always use caution when using compressed air. Never use compressed air to blow lint and dust off clothing or skin.

Lint

Avoid breathing in lint when changing the table and stack filters. Wear a mask suitable for this purpose.

Equipment Training

Never attempt to operate this machinery unless you received formal training to do so.

Do Not Operate in an Explosive Atmosphere

Use extreme caution when handling flammable liquids such as cleaning solvents. Do not operate the equipment in the presence of flammable gases or fumes.

Use Caution When Handling the CRT

The monitor on the operator workstation is a cathode-ray tube (CRT). Breaking a CRT could cause it to implode and scatter high-velocity glass fragments. To prevent CRT implosion, avoid rough handling or jarring of the equipment.

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Chapter 1
System Description

1

About This Chapter

This chapter introduces the S-5200 and S-7200 GERBERcutters and describes:

- what the S-5200 and S-7200 are
- major components and how they work
- options that enhance the S-5200 and S-7200

The S-5200 and S-7200

Your GERBERcutter (Figure 1-1) is a computer-controlled cutting system that can cut many plies of material. An S-5200 GERBERcutter can cut a compressed material height up to 5.2 cm (2.0 in.). The S-7200 GERBERcutter (Figure 1-1) can cut a compressed material height up to 7.2 cm (2.8 in.).These GERBERcutters automate the entire cutting process, replacing hand-held cutters, templates, and patterns. Instead of patterns, these GERBERcutters use computer data files called cut files to guide their knife blade. These cut files are made on Gerber marker making systems, such as the AccuMark 300™ or AccuMark 800™. Computer-aided accuracy means accurate notches and pieces so sewing operators waste little time assembling parts.

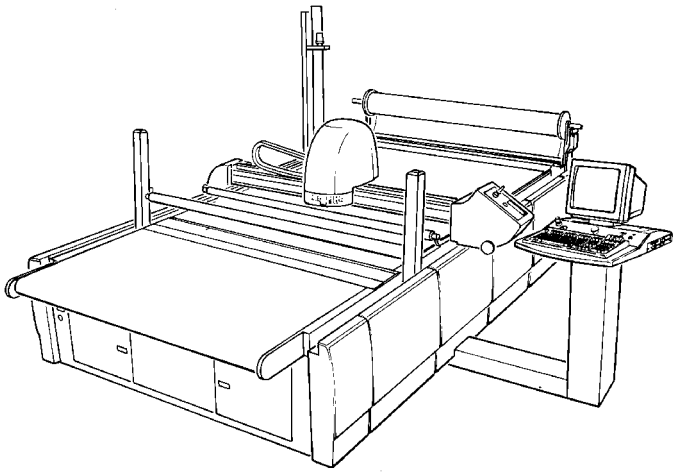


Figure 1-1. The S-7200 Short-Table GERBERcutter

Major Subsystems

Your GERBERcutter has two major subsystems that work together to cut material. These subsystems are the **C-200B controller** and the **cutting table**.

C-200B Controller

The C-200B controller is the command center of your GERBERcutter. Using its software, the C-200B tells the system how to cut the material. The C-200B (Figure 1-2) has two parts that work together: the **Front End Processor (FEP)** and the **Motion Control Computer (MCC)**. Located in the **operator workstation**, the FEP lets you communicate with the GERBERcutter. It sends your instructions and cut file data to the MCC inside the cutting table. The MCC then uses these instructions to run the cutting table.

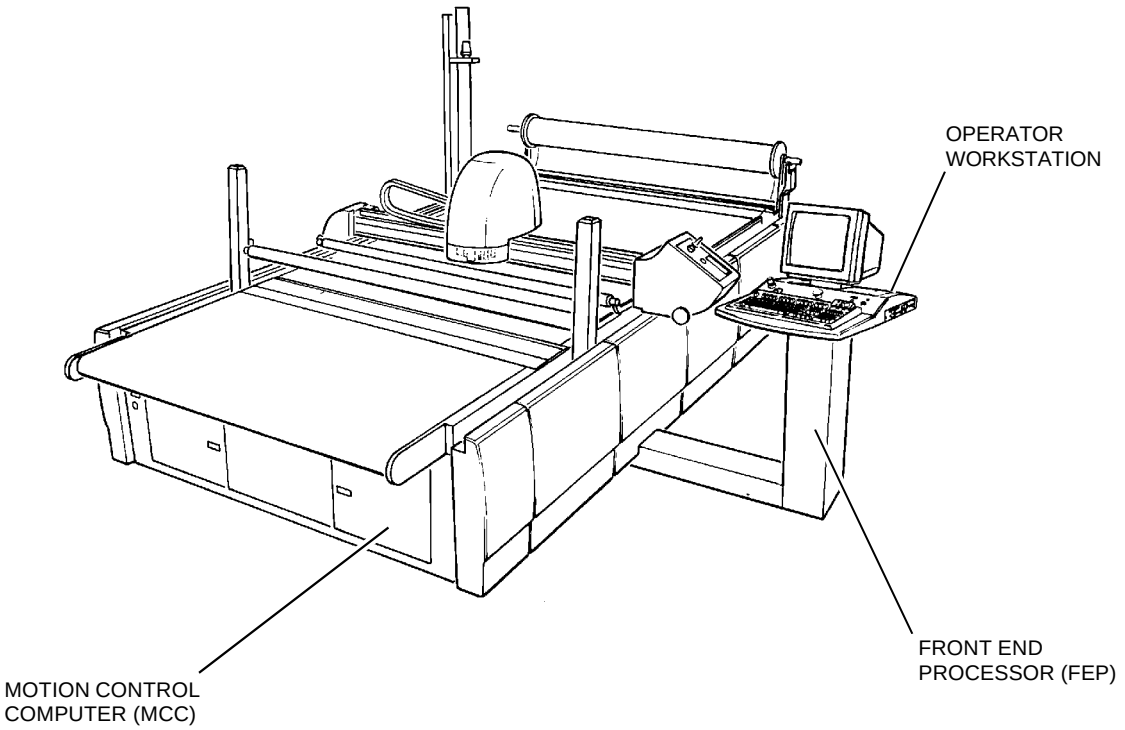


Figure 1-2. The C-200B Controller

Cutting Table

The cutting table (Figure 1-3) cuts material according to instructions from the C-200B controller. The cutting table has these major parts:

- cutter head and beam assembly
- film dispenser
- conveyor
- take-off ramp
- vacuum generator
- mast
- limit switches

Cutter Head and Beam Assembly. The cutter head and beam assembly (Figure 1-3) cuts material by moving a reciprocating knife across the cutting table. The assembly moves in response to C-200B commands. The knife turns for cutting rounded corners, curves, and notches. The cutter head, holding the knife, moves across the table on the beam. The beam travels the length of the cutting table. By combining these movements, the GERBERcutter accurately cuts complex patterns. A laser origin light on the cutter head lets you position the knife to start cutting at the right place. This light shines a red spot onto the material. The beam control panel (BCP) is a terminal that lets you control the cutter head and beam assembly from the cutting table. (See page 1-12 for more detail.)

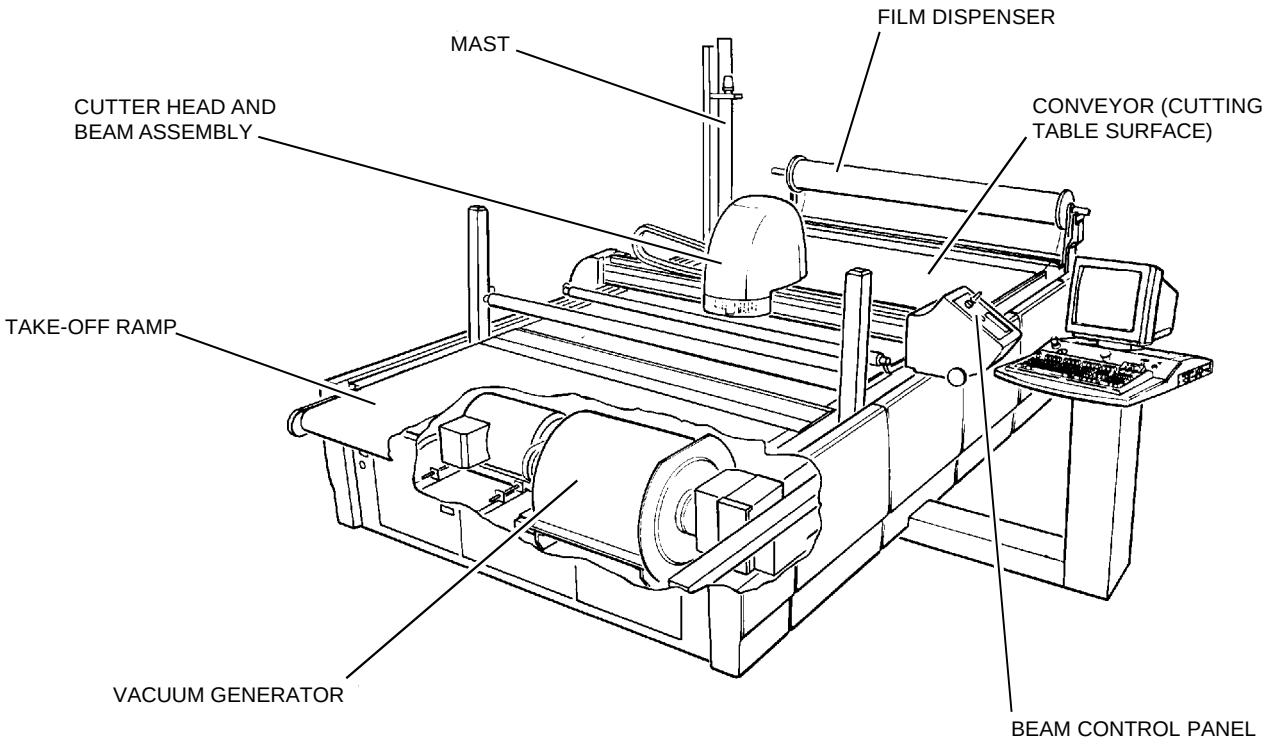


Figure 1-3. Cutting Table

Film Dispenser. The film dispenser (Figure 1-3) holds a roll of polyethylene plastic film. You place this plastic film over the lay before cutting it. The plastic film seals the material to allow a strong vacuum during cutting. This vacuum compresses the material and holds it firmly to the conveyor.

Conveyor. The conveyor (Figure 1-3) is a moving work surface for cutting fabric. It moves material from the take-on end of the cutting table before cutting to the take-off end after cutting. The conveyor is made of aluminum slats that hold Gerber **BRISTLE SQUARES®** (Figure 1-4). BRISTLE SQUARES are squares of molded bristle that plug into the conveyor slats. Each BRISTLE SQUARE has small holes in its base. When you apply vacuum to the cutting table, air passes through these holes to compress the material. Barrier strips between the slats seal the conveyor against vacuum loss.

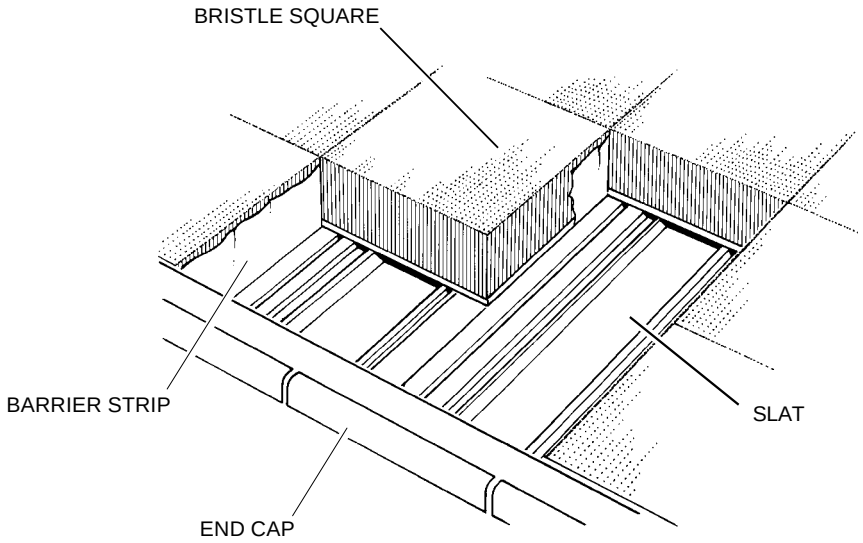


Figure 1-4. Bristle Squares and Conveyor Slats

Take-off Ramp/Table. The **take-off ramp/table** is a device for moving cut pieces off the cutting table. There are two options: a **conveyorized take-off table (CTOT)** or a **slick take-off ramp (STOR)**.

- The CTOT is a conveyor made of plastic links. It moves at the same speed as the conveyor to move cut pieces off the cutting table.
- The STOR does not move. It is a very smooth surface onto which the cut pieces slide when the conveyor advances.

Mast. The mast (Figure 1-3) is a tower that holds the GERBERcutter's overhead power cables and exhaust stack. On lateral drives, the mast also houses a flashing warning light and alarm that alert others when the cutting table is moving.

Vacuum Generator. The vacuum generator (Figure 1-3) is under the take-off end of the cutting table. It makes a vacuum that holds the material firmly on the work surface during cutting. The vacuum generator draws air through the BRISTLE SQUARES into the conveyor slats. From the slats, the air goes through a manifold and filter, into the vacuum generator, and out the silencer and the exhaust stack (Figure 1-5).

Three features control vacuum:

- **Vacuum Zoning** is an optional feature that improves cut quality and lowers power use. This feature applies vacuum where it is needed most: the area being cut. If your system does not use vacuum zoning, vacuum is applied to the entire cutting table surface.
- The **Energy Saving Mode (ESM)** greatly reduces table vacuum (and therefore saves energy) when the GERBERcutter is idle for a user-defined period.
- The **Cut Path Intelligence Low Vacuum Feature** is an optional feature that adjusts the feedrate for your marker based on table vacuum.

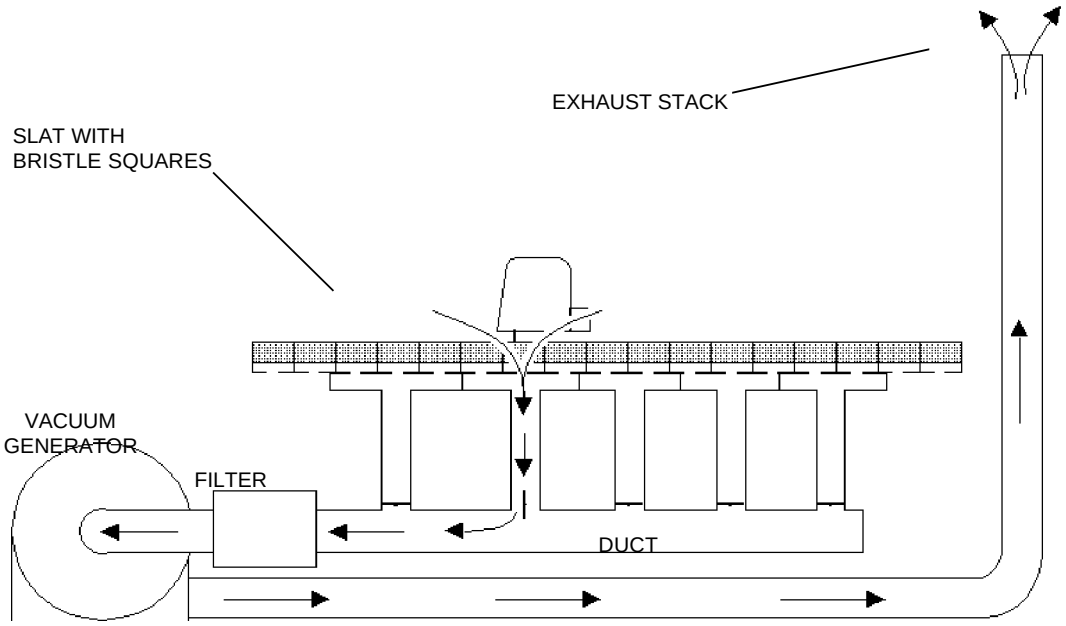


Figure 1-5. Table Air Flow

Limit Switches. Limit switches set **limits** for how far the cutter head and beam can move on the cutting table. Without them, the cutter head could strike the ends of the beam, and the beam could hit the bumpers at the end of the racks. The limit switches also tell the C-200B when the cutter head reaches the (X0, Y0) coordinate when you initialize the system.

There are three limit switch assemblies on the beam (Figure 1-6). Each limit switch is activated by a **magnet**, or small metal plate.

This magnet	Works switch	To
A	A	Limit cutter head travel in the +Y direction.
B	B1 (top)	Limit cutter head travel in the -Y direction.
	B2 (bottom)	Set (0Y) coordinate when you initialize the cutting table.
C1	C1	Set (0X) coordinate when you initialize the cutting table. Limit beam travel in the -X direction.
C2	C2	Limit beam travel in the +X direction.

When activated, the limit switch tells the C-200B to stop all cutter table motion and display an error message. You must then perform a recovery procedure to resume cutting.

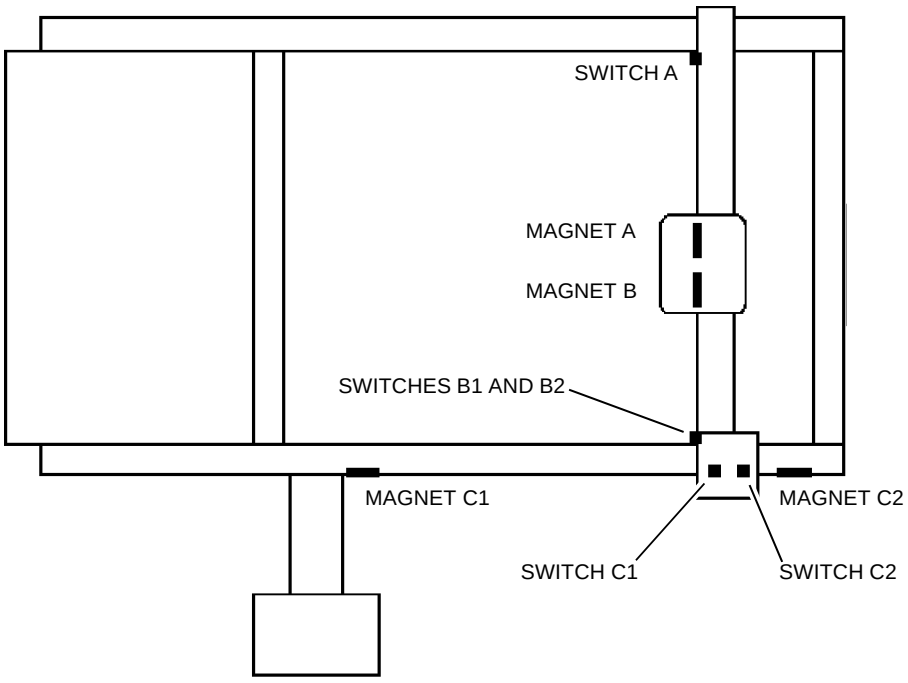


Figure 1-6. Limit Switch Locations

Operator Controls

Operator controls (Figure 1-7) let you give commands to the your GERBER-cutter and respond to system messages. These controls are the:

- emergency stops (ESTOPs)
- circuit breakers
- table motion controls
- beam control panel (BCP)
- operator workstation

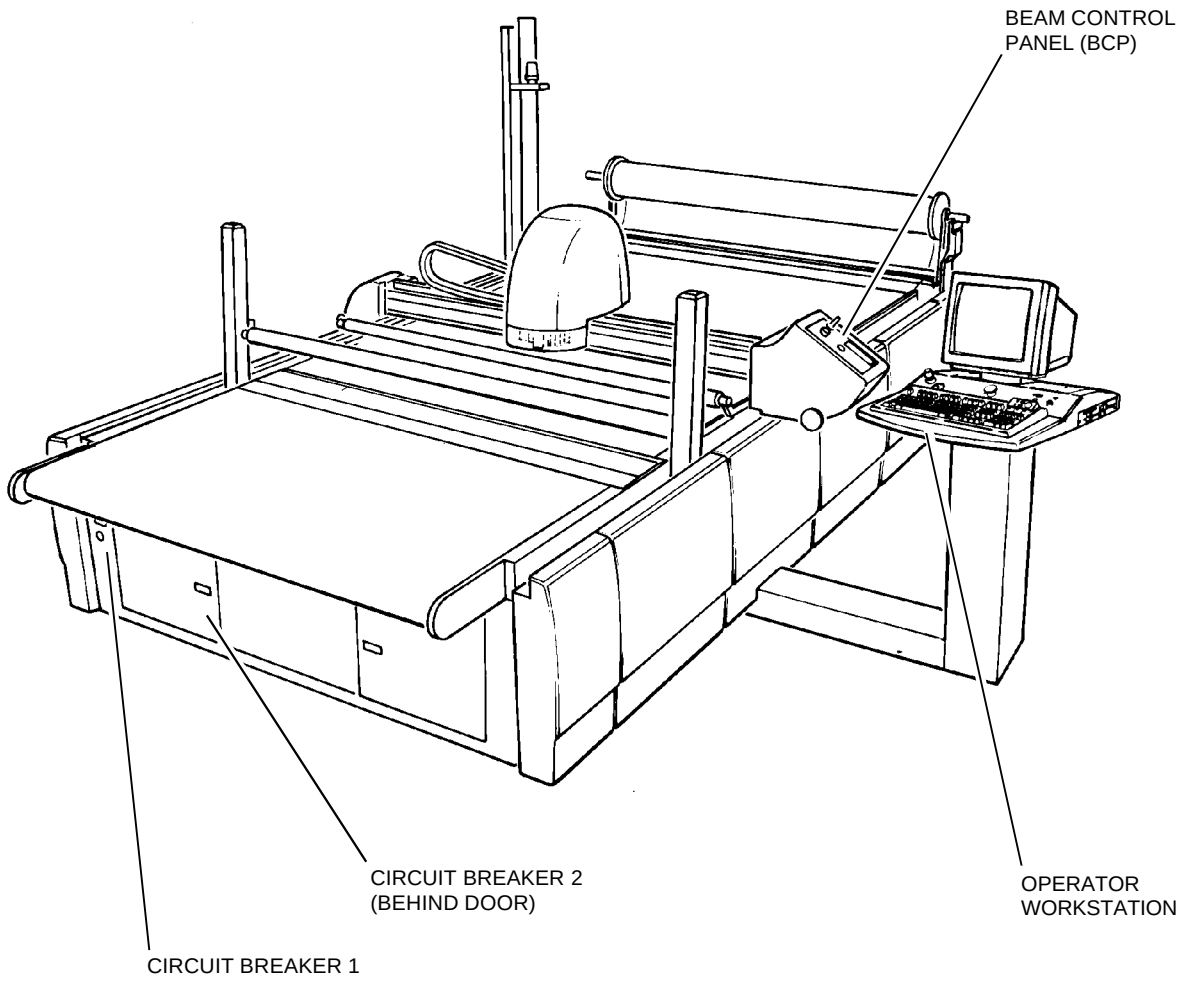


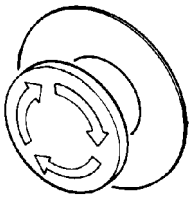
Figure 1-7. Operator Controls

Emergency Stop

Emergency Stop (ESTOP) is a safety procedure. You must know how to use ESTOPs before operating your GERBERcutter. An ESTOP halts all table motion in case of danger to people, the GERBERcutter, or the material being cut.

Your GERBERcutter has two kinds of ESTOPs: switches and plungers. Pressing an ESTOP switch or plunger immediately shuts off all power to the conveyor, vacuum generator, cutter head, and beam. All motion stops. Only the operator workstation stays on. You must do a recovery procedure before you can use the GERBERcutter again. Figures 1-8 and 1-9 show the ESTOP locations.

ESTOP Switches. ESTOP switches are large red buttons. To stop the cutter, press the switch. Your GERBERcutter has seven switches.



ESTOP Plungers. ESTOP plungers are large yellow buttons. They work automatically when they run into interference. For example, if you lean across the table as the beam is moving, the plunger depresses when it runs into you. All motion stops immediately. Your GERBERcutter has four plungers.

ESTOP Procedure. To stop the system:

1. Press one of the red **ESTOP** switches. All table motion stops.

2. The monitor displays:

   Controller error: 3404
   emergency stop condition occurred

3. Do the error recovery procedure described on page 3-13.

CAUTION: **Do not move the lay or jog the conveyor after an ESTOP. If you do, you must manually restore the cutter head to the correct cutting position.**

ESTOP Locations. These two figures show the locations of the ESTOP plungers and switches. Find these ESTOPs on your cutter before running it.

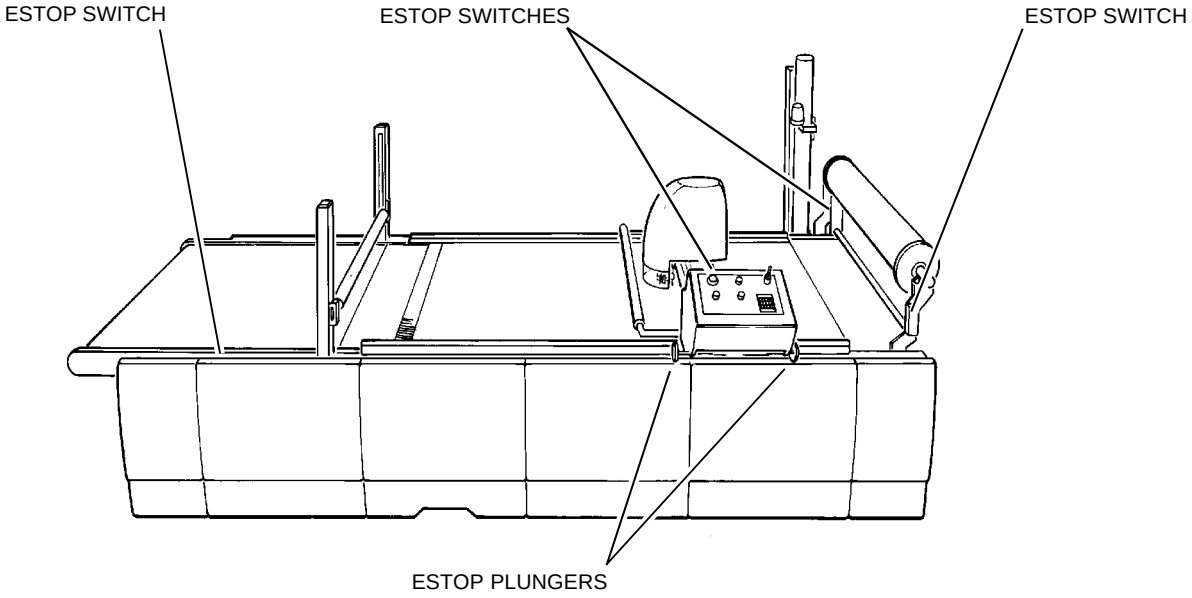


Figure 1-8. ESTOPs Seen from Left Side of Table

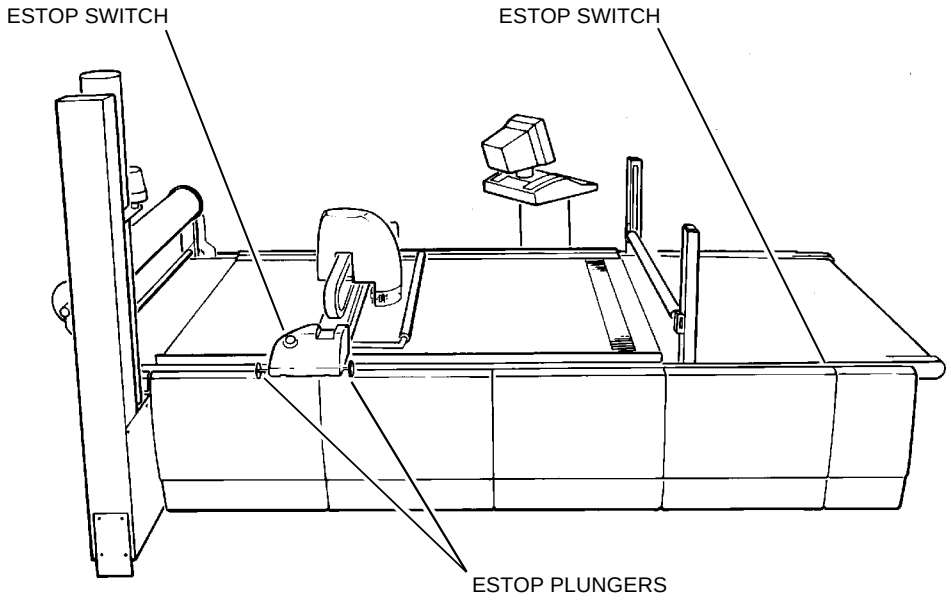


Figure 1-9. ESTOPs Seen from Right Side of Table

Circuit Breakers

Your GERBERcutter has two main circuit breakers on the cutting table (Figure 1-10). Both circuit breakers must be turned on for the system to run properly.

Circuit breaker 1 provides power to the C-200B controller, servo motors, and conveyor. It is in the upper left corner of the take-off end. You use this circuit breaker to turn on the GERBERcutter.

Circuit breaker 2 provides power for the vacuum generator. It is located in the vacuum electrics enclosure. This circuit breaker is always left on.

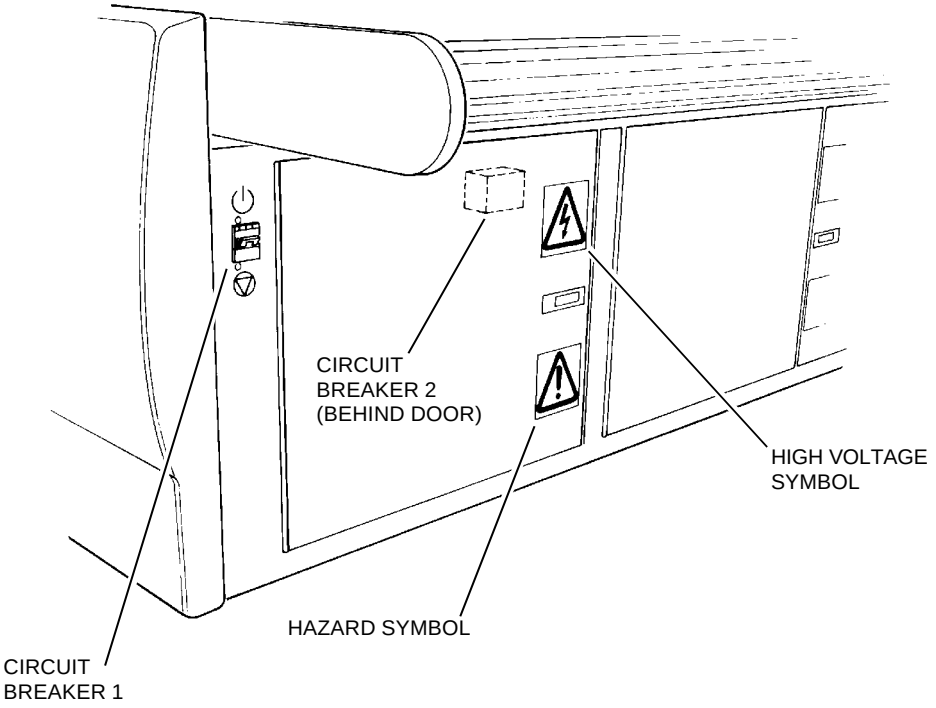
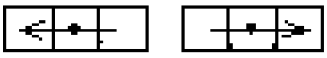


Figure 1-10. Circuit Breaker Location

WARNING: High voltages exist within the vacuum electrics enclosure and inside the C-200B controller. Never perform any work inside the vacuum electrics enclosure. There are no operator-serviceable parts inside.

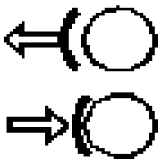
Table Motion Controls

The table motion control switches move the conveyor and the cutting table. They are at the take-on end of the table (Figure 1-11).



Jog Control

Moves the conveyor toward the take-off or take-on end of the table. The jog control switch is on the support arm for the film dispenser. Turn the switch toward the direction you want the conveyor to move.



Brake

Releases or sets the brakes for the optional lateral drive. This switch is on the lateral drive control. To release the brakes and turn on (enable) the lateral drive motor, turn the switch clockwise. To set the brakes and turn off (disable) the lateral drive motor, turn the switch counterclockwise.

Lateral Drive

Moves the cutting table. Use this option to align the cutting table with the spreading table. This switch is located on the lateral drive control. Using the brake switch, release the brakes. To move the table away from you, turn the switch clockwise. To move the table toward you, turn the switch counterclockwise.

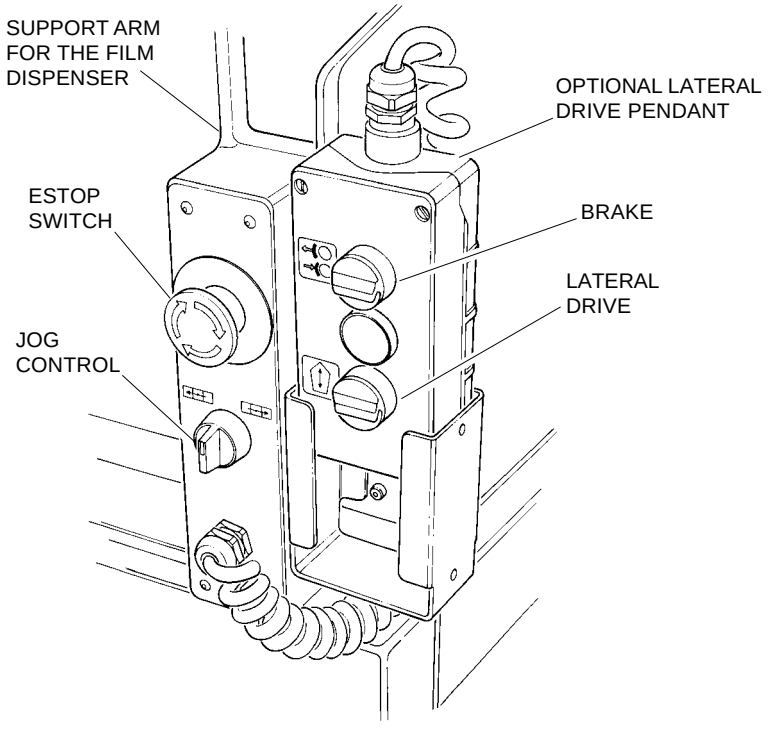


Figure 1-11. Table Motion Controls

Beam Control Panel

The Beam Control Panel (BCP) lets you control the cutter head, beam, and certain table functions from the cutting table (Figure 1-12). Table 1-1 explains each beam control panel function.

NOTE: Certain BCP functions can also be done by pressing an icon key on the operator workstation. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for a list of each icon key with its corresponding BCP key.

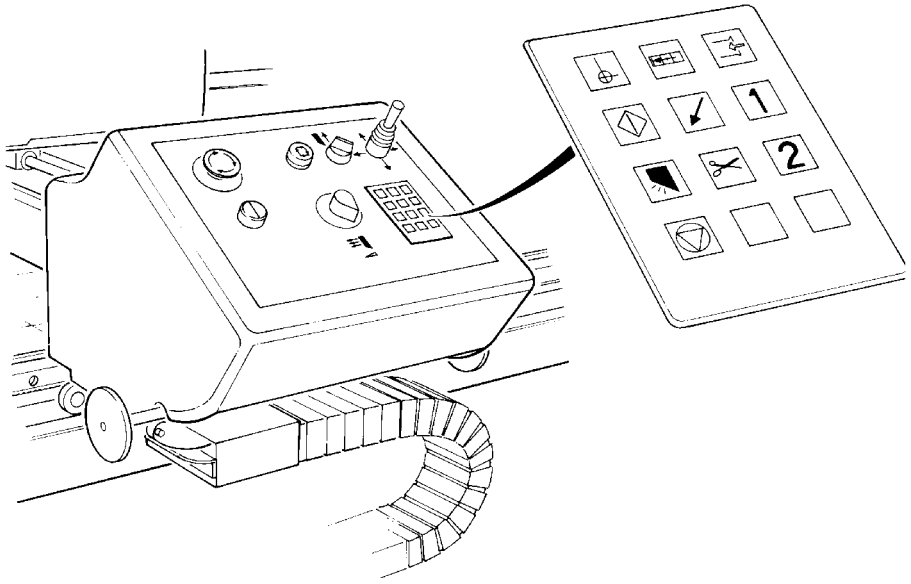


Figure 1-12. Beam Control Panel

Table 1-1. Beam Control Panel Functions

Key/Switch	Description
	**ESTOP SWITCH**. Use this switch to immediately stop all table motion (page 1-8).
	**KNIFE SWITCH**. Use this switch to turn the knife motor on or off.
	**MANUAL MODE LIGHT**. Lights up when the head and beam are both stopped.
	**FEEDRATE DIAL**. Turn this dial to set the feedrate at which the cutter head and beam move across the table. The range is from 1 (minimum) to 15 (maximum); 0 is no movement. Cutting speed is the same as feed rate.
	**JOYSTICK**. Use this control to move the cutter head and beam in the direction of the arrows. (-X, +X, -Y, or +Y.) (See page 2-2.)
	**ERROR WARNING LIGHT**. Lights up when the joystick is not performing its usual function. For example, when your GERBERcutter is in manual bite or trim cut mode. It also lights up when a controller error occurs.
	**STOP SWITCH**. Use this switch to stop the current operation of your GERBERcutter.
	**VACUUM SWITCH**. Press this switch to turn cutting table vacuum on or off.
	**KI NULL SWITCH**. Press this switch twice to reset Knife Intelligence. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for more information about Knife Intelligence.
	**FABRIC ALIGNMENT SWITCH**. Press this switch twice to set fabric alignment. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for more information about fabric alignment.
	**MANUAL BITE SWITCH**. To do a manual bite, press this switch and move the joystick in the -x direction. The beam and conveyor move together in the -x direction for as long as you hold the joystick in the -x direction. To quit this function, press the stop switch or press the manual bite switch again.
	**INITIALIZE SWITCH**. Press this switch to move the cutter head to the (X0,Y0) coordinate.
	**TRIM CUT SWITCH**. Use this switch to manually trim the edges of a lay.

Table 1-1 (Cont'd). Beam Control Panel Functions

Key/Switch	Description
	**ESTABLISH ORIGIN SWITCH**. Press this switch to set the current position of the origin light as the origin of your marker. The marker origin is the (X,Y) coordinate where the marker starts. **NOTE: The C-200B software allows for the mechanical offset between the knife and the origin light.**
	**START SWITCH**. Press this switch to start your GERBERcutter.
	**SHARPEN KNIFE SWITCH**. Press this switch to sharpen the knife blade once.

Operator Workstation

You use the operator workstation (Figure 1-13) and the beam control panel (BCP) (Figure 1-12) to run your GERBERcutter. Here are the major components associated with the operator workstation:

- monitor
- keyboard
- icon (function) keys
- trackball
- accessory tray
- presser foot adjust
- presser foot air pressure gauge
- emergency stop
- CTOT auto enable
- servo power enable
- floppy disk
- floppy disk drives
- streamer tape drive
- hard disk drive

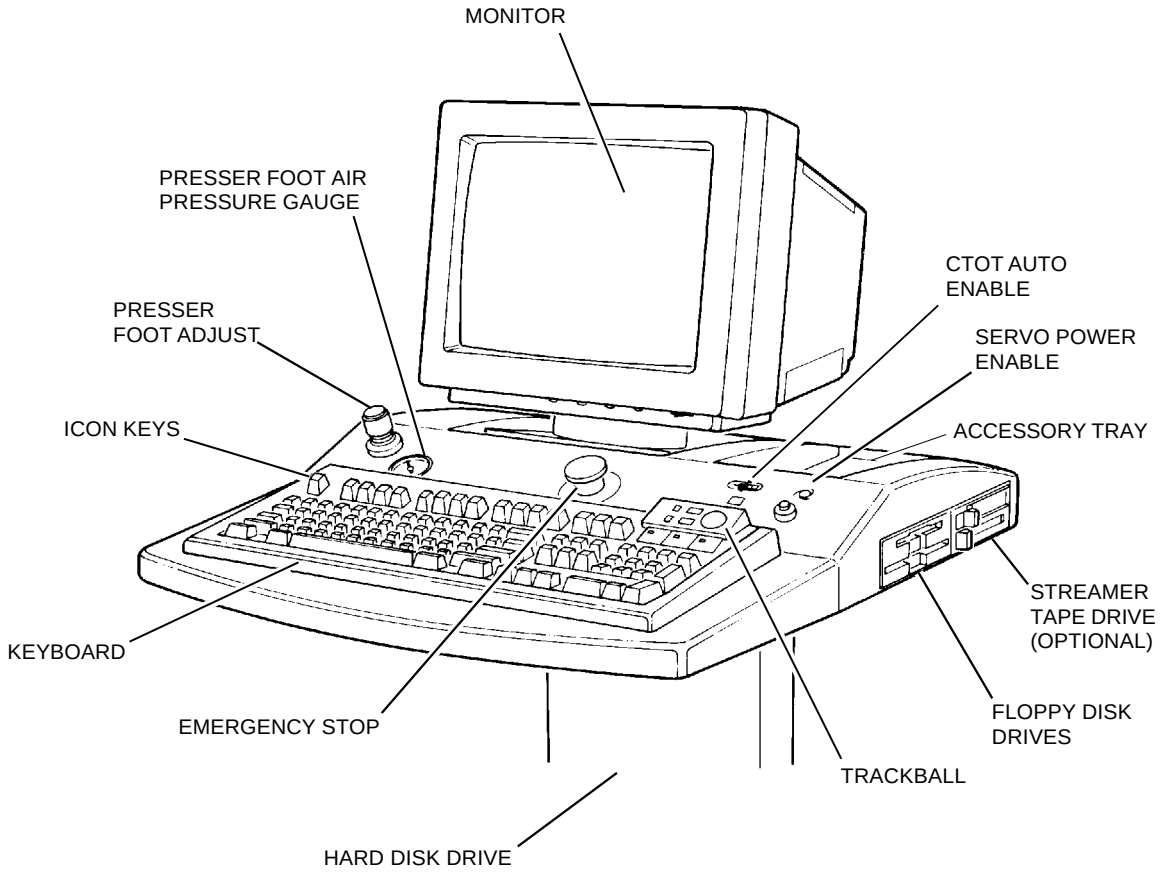


Figure 1-13. Workstation Components

Monitor. The monitor is a device like a television that receives computer video signals and displays information on the screen.

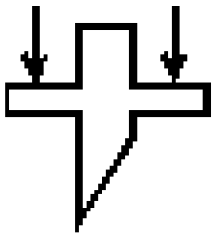
Keyboard. The keyboard is a device with keys, like those on a typewriter, that lets you enter data and communicate with the C-200B controller. You use the keyboard to enter the commands that run the GERBERcutter. See the *C-200B Software User's Guide* (GGT P/N 075784000) to find out more about these commands.

Icon (Function) Keys. Each function key performs a C-200B command to operate the GERBERcutter. The icon (picture) and color of the key tells you which key performs each function. See the *C-200B Software User's Guide* to find out more about these keys and their commands.

Trackball. The trackball moves the cursor across the monitor's screen. Use this for selecting cut files and configuration files.

Accessory Tray. Use this to store pens, pencils, floppy disks, etc.

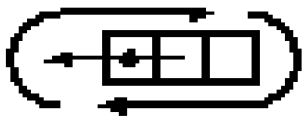
Presser Foot Adjust. This control adjusts air pressure for the presser foot on the cutter head. You must set the air pressure for the type of material and thickness of lay being cut. This is the icon marking this knob:



Air Pressure Gauge. This control shows current presser foot air pressure.

Emergency Stop. Pushing this switch causes an emergency stop (ESTOP) that immediately halts all GERBERcutter motion (page 1-8).

CTOT AUTO Enable. Pushing this switch to **1** lets the conveyorized takeoff table (CTOT) move automatically when the table conveyor moves. Pushing the switch to **0** stops the CTOT. The CTOT starts and stops with the conveyor to remove cut pieces from the cutting table. This is the icon marking this switch:



Servo Power Enable. Pushing this button turns on power to the servo motors. These are motors that move the cutter head and beam as the GERBERcutter cuts material. This is the icon marking this button:

Floppy Disk. A floppy disk is a computer storage medium made of plastic with a magnetic coating. Each disk has a jacket containing holes that let the floppy disk drive access the disk. The C-200B software and cut files are stored on floppy disks before being copied into the Front End Processor (FEP) hard drive. Floppy disks come in two sizes: 3.5 and 5.25 inches.

Floppy Disk Drives. Each floppy disk drive is a device that lets the computer read and write data on a floppy disk. For example, use this drive to copy cut files onto your system. The workstation has two drives: one for 3.5-inch floppy disks and one for 5.25-inch floppy disks.

Streamer Tape Drive. The streamer tape drive is an optional device that lets a computer read and write data on a tape. For example, use this drive to back up your system.

Hard Disk Drive. The hard disk drive holds the C-200B software that runs the GERBERcutter. A hard disk drive can store much more data than a floppy disk. The hard disk drive is built into the Front End Processor (FEP) and cannot be removed. You need to manage your hard disk so it does not become too full and disorganized. See the DOS User's Guide for more information on managing the hard disk.

Options

Several options are available for tailoring your GERBERcutter to the material you cut and to your way of doing business. Here is a partial list of optional hardware and software that you may find useful as you become more familiar with your GERBERcutter. For more information, call your GGT sales representative.

Cutting Table Configurations

Several cutting table configurations are available:

Cutting Table Dimension	Metric Units	Standard Units
Cutting Table Height Options	75 cm	29.5 in.
	80 cm	31.5 in.
	86 cm	34 in.
	91 cm	36 in.
Usable Cutting Table Length Options	1.7 m	67 in.
	2.54 m	100 in.
Usable Cutting Table Width Options	1.7 m	67 in.
	2.0 m	78.75 in.
	2.4 m	94.5 in.

Cut Path Intelligence

Cut path intelligence optimizes cutting based on the cutting forces on the knife and vacuum level.

Resealer

The resealer uses plastic film to automatically cover the cut area of the lay. Covering the cut area improves cut quality by maintaining vacuum.

Vacuum Zoning

This optional feature improves cut quality and lowers power use. This feature applies vacuum only to the area being cut. If your system does not use vacuum zoning, vacuum is applied to the entire cutting table.

Bristle Cleaner

An optional automatic or an optional semi-automatic bristle cleaner let you more efficiently remove debris from your cutting surface.

Lateral Drive

A lateral drive option moves the GERBERcutter from spreading table to spreading table. This lets you finish cutting one lay of material as you move your GERBERcutter to another spreading table.

Network File Server

The AccuMark 700™ FS network file server provides a central database for AccuMark 300™ systems and other Gerber products. It links systems so you can share data electronically instead of by floppy disk.

Drill

The drill attaches to the cutter head. It lets the GERBERcutter automatically make drill hole marks as it cuts material. Solid, hollow, half round, and solid groove point drill bits are available. Sizes range from 1.2 mm to 15.0 mm (0.046 in. to 0.591 in.).

GPP-200 POWER Processor

The GPP-200 POWER Processor™ is a software program that lets you modify cut files to improve cut quality, reduce cut time, increase material savings, and reduce wear on your GERBERcutter. You can:

- change the piece cutting sequence
- change the start point of a piece
- add or remove knife lift and plunge points
- add or remove Optional Stop points for plaid/stripe matching
- view cut pieces by panning through the marker
- optimize the cut path

Right-Side Option

On a right-side option GERBERcutter, the operator workstation and BCP are on the right side of the cutting table as seen from the take-on end. The mast is on the left side of the cutting table. (The take-on end is the end of the cutting table from which you pull material onto the conveyor.)

Streamer Tape Drive

The streamer tape drive is an option on the operator workstation. Use this for backing up data.

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Chapter 2
Basic Concepts

2

About This Chapter

This chapter describes basic concepts of the GERBERcutter. Understanding these ideas will make it easier to operate the system:

- direction and location on the cutting table
- software and files
- bite feeding

Direction and Location

GGT uses specific terms to describe direction and location on the cutting table. Learning these words will make it easier to find your way around the GERBERcutter.

Ends and Sides

Each side of the cutting table is named so you can identify it easily (Figure 2-1). Material comes onto the cutting table from the take-on end and leaves from the take-off end. The right and left sides are as when viewed from the take-on end of the cutting table.

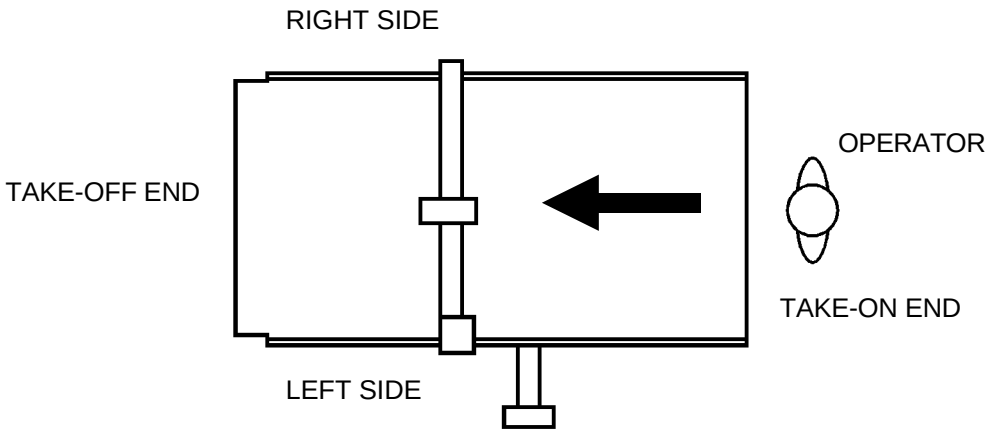


Figure 2-1. Cutting Table Ends and Sides

The X, Y, and C-Axes

The GERBERcutter uses three imaginary lines or axes to describe movement and location on the cutting table. They are the X, Y, and C-axes (Figure 2-2). The Y-axis is the width of the table. The X-axis is the length of the table. The C-axis is in the cutter head. The beam moves along the X-axis, the cutter head travels the Y-axis, and the knife rotates about the C-axis in the cutter head.

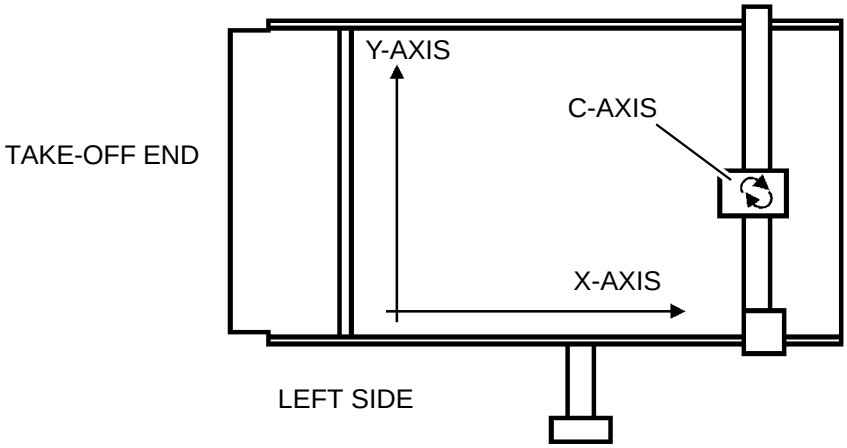


Figure 2-2. The X, Y, and C-Axes

Movement is always in a plus or minus (+ or -) direction on the X and Y-axes (Figure 2-3). If you stand on the left side:

- +X is to your right
- -X is to your left
- +Y is away from you
- -Y is toward you

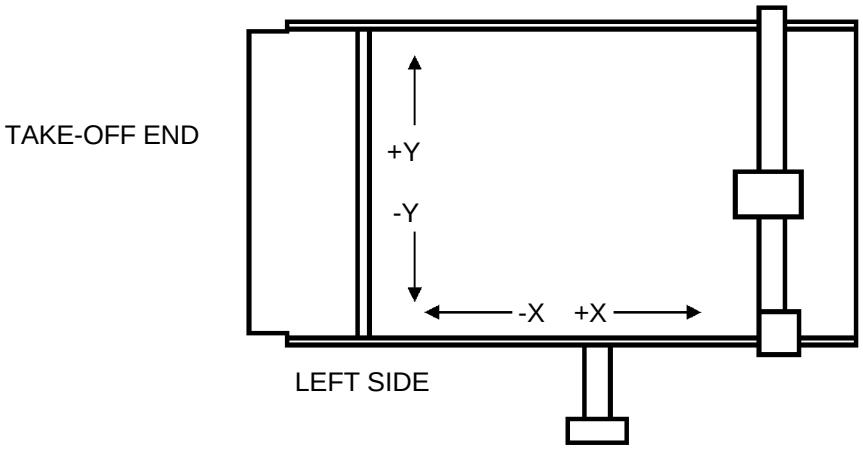


Figure 2-3. Direction on the Cutting Table

Location is also given in terms of the X and Y-axes (Figure 2-4). The point (X0, Y0) is on the lower left corner of the work surface near the take-off end. All locations on the work surface are relative to this position. Unlike direction, location is always given in positive (+) numbers. To find the point (X=45 cm, Y=55 cm), start at (X0, Y0). Measure 45 cm (18 in.) to the right along the X-axis. From there, measure 55 cm (22 in.) away from you on the Y-axis. You are now at the point (X=45 cm, Y=55 cm) or (X=18 in., Y=22 in.).

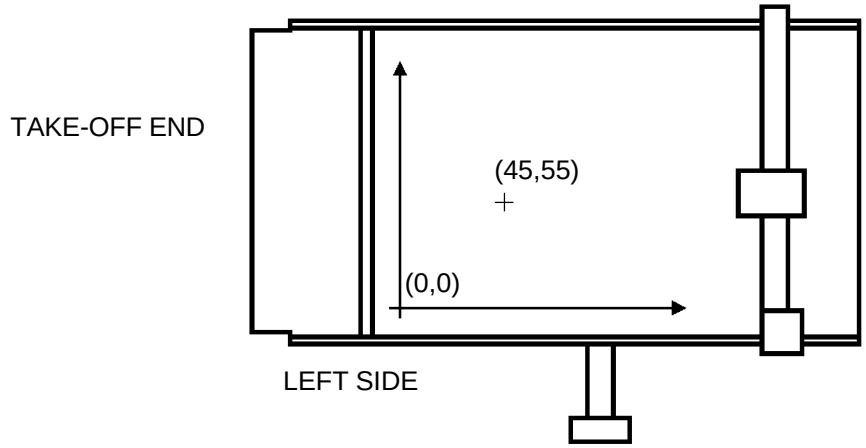


Figure 2-4. Location on the Cutting Table

Origin

Just as the table has a (X0, Y0) position marking its lower left corner, so does each marker. The (X0, Y0) position of the marker is called the origin. All data points (locations) of the marker are relative to the origin.

Before the GERBERcutter can cut a marker, you must set the location of the origin. The cutter then cuts each piece relative to this point. To set the origin, move the origin light to the starting point of the marker and press the **ESTABLISH ORIGIN SWITCH** (see page 1- 14) on the BCP or F10 on the operator workstation. The origin light is a red laser light that shines on the cutting table. It is in the cutter head.

> **WARNING! The origin light uses a Class IIIa laser. Do not look directly into the laser beam without protective glasses. Do not place any reflective (shiny) material on the cutting table. Remove watches, rings, and other jewelry. Highly reflected laser light may cause eye injury.**

The origin must be close enough to the lower left corner of the table so that the marker can fit on the table. For example, in Figure 2-5, the origin is at (25, 50). With that origin, the marker extends off the table in the Y direction. Figure 2-6 corrects this situation by moving the origin to (25, 25).

If the cutter cannot cut the marker because it would go off the table, you get an off table message, such as:

Off table in +Y

OR

Off table in -X

Using the Check Origin feature, the system automatically verifies the marker will fit on the cutting table with the current origin. It does this before cutting the marker. If the origin does not work for your marker, the system displays an error message like this:

Bad Origin: X too high (x.xxx)
acceptable range: x.xxx - x.xxx
Press any key to continue

where **x.xxx** is a table location in the X direction. You get a similar message if the origin needs to be corrected in the Y direction.

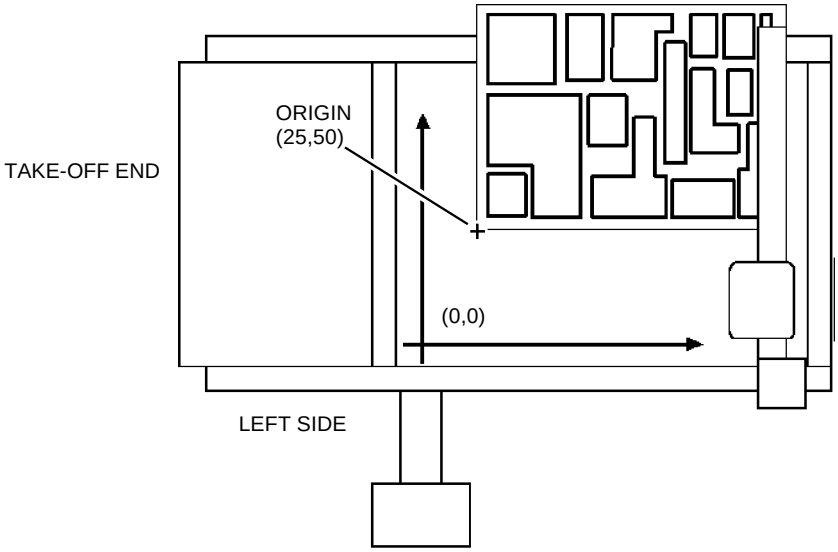


Figure 2-5. Marker Does Not Fit with This Origin

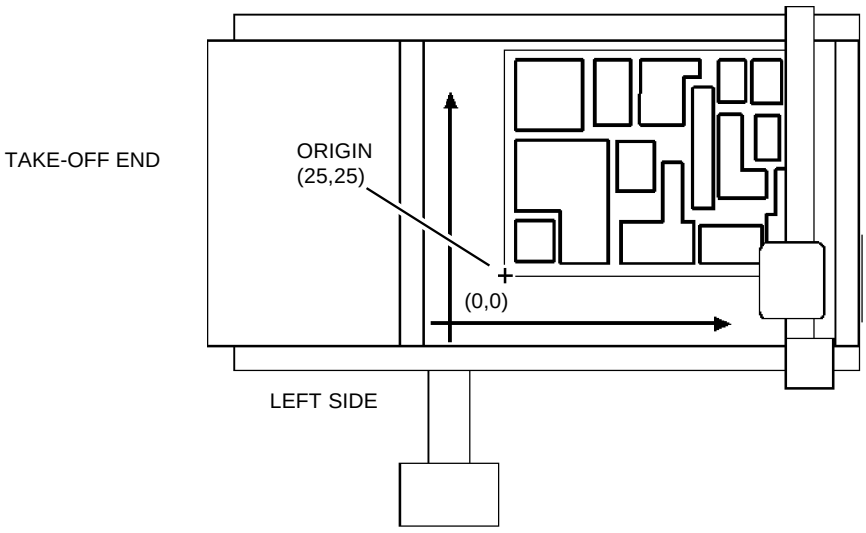


Figure 2-6. Marker Fits with This Origin

Bite Feeding

The GERBERcutter uses its conveyor for bite feeding. Bite feeding is a feature that matches cutter head movement with conveyor movement. With bite feeding, the GERBERcutter can easily cut a lay that is longer than the cutting table.

The GERBERcutter does this by cutting the lay in sections. These sections are called **bites**. The system sets the length of each bite in the marker. The cutter pulls the bite onto the cutting table and cuts the material. The conveyor advances until the next bite is on the work surface.

Cutting a Marker with Bite Feeding

Figure 2-7 shows an example of bite feeding. Diagram 1 shows a lay that has been divided into three bites.

To begin automatic cutting, the conveyor pulls the leading edge of the lay onto the cutting surface (with the aid of underlay paper, if needed). The conveyor is advanced manually until the first bite is on the cutting table (Diagram 2).

The GERBERcutter cuts the first bite, including pieces that extend into the second bite (Diagram 3). The knife cuts a slit in the selvage of the material. This slit marks the origin of the second bite. It is a reference point for the cutter during the second bite. The slit (or edge clip) is made by the C-200B software.

Next, the conveyor moves the first bite to the take-off system and brings the second bite onto the cutting surface (Diagram 4). While the bundlers remove the pieces from the first bite, the GERBERcutter cuts the second bite.

After the system cuts the second bite, the conveyor pulls the third bite onto the cutting surface. It brings the second bite down to the bundlers, and moves the scrap from the first bite to the end of the take-off ramp, where you can collect it or discard it (Diagram 5). The conveyor feeds bite after bite until the GERBERcutter cuts the whole lay.

Types of Bite Markers

The GERBERcutter can set the bites for the marker in two ways: on-line and off-line. The on-line method, called run time biting, bites the marker just before cutting it. The off-line method, called standalone SBITE, bites the marker on another computer. The cut file is then copied onto the C-200B for cutting.

Both methods can define bites in two ways: static mode and variable length. Static mode means that all bites for one marker are the same length. Variable length means that the size of each bite depends on the pieces being cut.

See the *C-200B Software User's Guide* (GGT P/N: 075784000) to find out how to bite a marker.

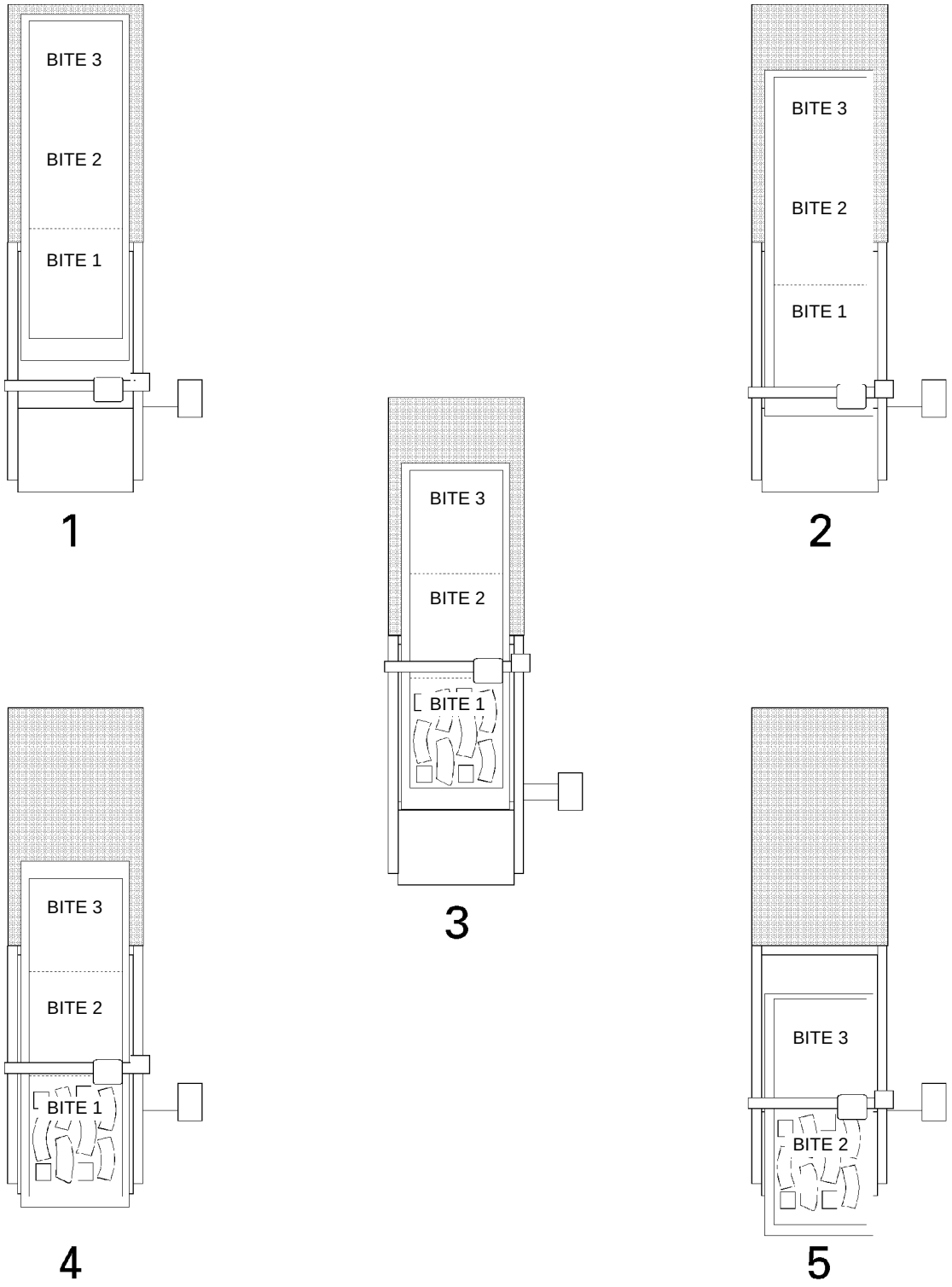


Figure 2-7. Bite Feeding on the Conveyor

Software and Files

Software

Software is the set of computer programs that the C-200B uses to run the GERBERcutter and communicate with you. These programs include DOS and C-200B. DOS is the operating system for the FEP. The C-200B software reads cut files and configuration files to tell the cutting table how to cut material.

For more information about C-200B software and DOS, see the *C-200B Software User's Guide* (GGT P/N: 075784000).

Cut File

A cut file is a computer data file that tells the GERBERcutter how to cut a set of patterns (a marker) out of a lay of material. The cut file is made by a Gerber marker making system such as the Gerber AccuMark 300 or AccuMark 700.

Configuration File

A configuration file is a computer data file that sets up the system for the materials being cut. For example, you may have one configuration file for cutting denim and another for flannel. The C-200B software comes with several default configuration files.

Chapter 3
Getting Started

3

About This Chapter

This section describes how to cut material on your GERBERcutter. This chapter assumes you know the material in the first three chapters of this manual.

> **WARNING! The cutter head, beam, knife, and conveyor may move unexpectedly when your GERBERcutter cuts material. To avoid injury, stay clear of these parts when using your GERBERcutter. Be sure you are familiar with all emergency stops (ESTOPs) before you start cutting (page 1-8).**

Cutting Steps

These are the steps for cutting material:

1. Spread the material (page 3-2)
2. Turn on your GERBERcutter (page 3-2)
3. Position the first bite (page 3-5)
4. Select the configuration file (page 3-5)
5. Select the cut file (page 3-6)
6. Set the origin of the marker (page 3-6)
7. Check the straightness of the spread (page 3-8)
8. Process the cut file (page 3-11)
9. Recover from an error (page 3-13)
10. Do a trim cut (page 3-16)
11. Shut off your GERBERcutter (page 3-17)

Step 1: Spread the Material

CAUTION: **Different materials require specific spreading methods for the best cutting results. The following procedures are general guidelines only.**

To spread material on the spreading table:

1. Place an underlay of perforated or air-porous paper (25-60 lb.) on the spreading table. Be sure the paper extends at least 0.3 m (1 ft) beyond the leading edge of the spread.

   The underlay lets you move the lay without pulling or disturbing the material. When vacuum is applied, the underlay keeps the material clean and in place. It also provides extra support for stretchy and light-weight material.

2. Using the method appropriate for your site, spread the material on top of the perforated paper. Normally the straight edge is on the operator's side of the cutting table.

   CAUTION: **Do not exceed your GERBERcutter's maximum compressed material ply height. Exceeding the maximum material ply height will lower cut quality, shorten knife life, and may damage your GERBERcutter.**

3. If you use full-size plots, put the correct one on top of the lay. The plot lets you identify individual pieces after they are cut.

Step 2: Turn on Your GERBERcutter

Follow these procedures to turn on your GERBERcutter:

1. Look at the beam and cutter head. Make sure that:

   a. the limit switches are not parked on a magnet.

   b. the beam is away from magnet C1 (Figure 1-6).

2. If necessary, manually move the cutter head and beam toward the center of the work surface.

NOTE: **If a limit switch is parked on a magnet, you cannot enable the servomotors. If the beam is past magnet C1 or C2 (Figure 1-6), the system displays an error message and stops all cutting.**

3. On the BCP, turn off the **KNIFE SWITCH**.

4. Set feedrate to **0**.

5. On the operator workstation, set **PRESSER FOOT ADJUST** to the proper setting for the cut file. For normal operating conditions, this setting is between 30 and 40 psi.

6. On the take-off end of the table, turn on circuit breaker 1.

7. The C-200B does a self-check. After the C-200B has booted and is ready to receive commands, the monitor displays:

C-200B USER PROGRAMS	
COMMAND	PURPOSE
C200B	To start the C-200B cutter program.
CONFIG	To enter the CONFIGURE program.

SYSTEM:

8. Type **c200b** at the **SYSTEM:** prompt.

9. Press **ENTER**. The monitor briefly displays:

   Loading Language-Specific message Files . . .

   And then:

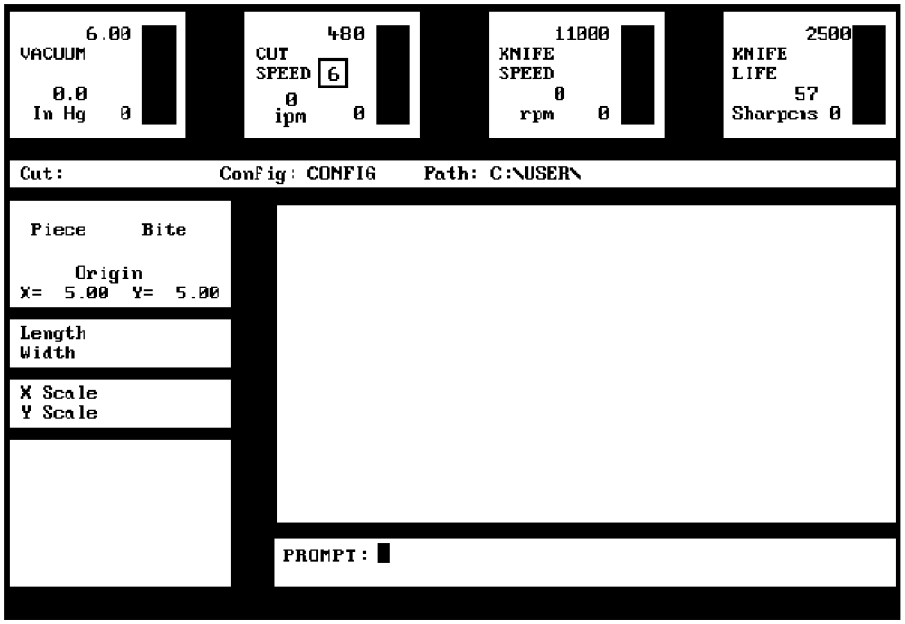
   Initializing System Parameters . . .

   And then:

   Enable SERVO POWER or press:

   D for Diagnostic Menu
   M for Download Menu
   Escape to ABORT . . .

10. On the operator workstation, push the **SERVO POWER ENABLE** button. The system displays the status screen:



NOTE: If you do not see this screen, do the following:

1) Check for a limit switch parked on a magnet. If this is the case, manually move the cutter head and beam toward the middle of the work surface and try again.

2) Be sure all ESTOP switches are up; if not twist them clockwise.

3) Be sure all ESTOP plungers are not activated.

11. Press **F11** on the operator workstation to initialize the system.

    a. The cutter head moves to the cutting table's (X0, Y0) coordinate. The C-axis moves to 0 degrees. The monitor displays:

       Initializing . . .

    b. The cutter head stops and the monitor displays:

       Origin reported:
       X = 0.000, Y = 0.000

    c. Press **ENTER**. The monitor displays the command line. The system is ready to accept commands.

Step 3: Position the First Bite

1. Manually pull about 1 m (3.3 ft.) of the lay onto the table.

2. Use the jog control switch to advance the conveyor until the lay is about 25 cm (10 in.) from the take-off end of the cutting table.

   CAUTION: **Do not advance the conveyor too far. You cannot reverse the conveyor without disturbing the lay.**

3. Manually pull the plastic film overlay (polyethylene) from the film dispenser to cover the entire bristle surface. This allows proper vacuum compression.

   CAUTION: **If not positioned carefully, the plastic film can get caught in the racks the beam travels on. To avoid damage to material and your GERBERcutter, keep the plastic film away from the racks.**

Step 4: Select the Configuration File

Choose the configuration file for the cut file you are going to cut. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for more information about the CC command and choosing your configuration files.

1. At the command line, type **CC**.

2. Press **ENTER**. The system displays a list of your configuration files.

3. Use the arrow keys, page up/down keys, or trackball to highlight the configuration file that you want.

4. Press **ENTER** to select the highlighted configuration file.

5. The system displays:

   Loading Configuration File
   Please wait...

6. The name of the file you selected appears in the **Configuration File** box and the system displays the command line.

Step 5: Select the Cut File

You are now ready to select the cut file for processing.

1. At the command line, press **F1**. (See the *C-200B Software User's Manual* (GGT P/N 075784000) for more information about the **F1** key and choosing a cut file.)

2. The system displays:

   Enter name of desired cut file or press ENTER to view files:

3. Press **ENTER**. The system displays a list of your cut files.

4. Use the arrow keys or trackball to highlight the cut file that you want.

5. Press **ENTER** to select a highlighted cut file.

6. The system displays the command line. The name of the file you selected appears in the **Cut File** box.

Step 6: Set the Origin

Set the origin of the marker. The origin is the lower left corner of the marker.

WARNING! The origin light uses a Class IIIa laser product. Do not look into the laser at any time. Do not place any reflective material, such as mirrors or polished steel, on the cutting table; laser reflections from these materials can cause eye injury.

1. Turn on the laser origin light. The switch is a blue button on the left side of the cutter head.

2. On the BCP, turn on the **VACUUM SWITCH**. The vacuum generator turns on and compresses the lay.

3. If you have a conveyorized take-off table (CTOT), on the operator workstation, turn on the **CTOT**.

4. At the BCP, set the origin:

   a. Set the **FEEDRATE DIAL** to **1** or **2** .

   b. Use the joystick to position the cutter head so that the origin light falls on the lower left corner of the lay.

   c. Press the **ESTABLISH ORIGIN** switch to set the origin at the origin light. The monitor displays:

      Origin reported:
      X = x.xxx, Y = y.yyy

      where **x.xxx** and **y.yyy** are the actual table coordinates of the origin.

Step 7: Check Straightness

Before cutting the marker, be sure the spread is laid straight on the cutting table. You can do this in three ways:

1. You can manually check the straightness of your fabric and manually straighten the fabric if needed.

> **WARNING! Check that it is safe to move the cutter head and beam! Make sure nobody is near the cutter head, beam, and conveyor.**

> **WARNING! The origin light uses a Class IIIa laser product. Do not look into the laser at any time. Do not place any reflective material, such as mirrors or polished steel, on the cutting table; laser reflections from these materials can cause eye injury.**

   a. Turn on the origin light.

   b. On the BCP: set the **FEEDRATE DIAL** to a low setting (for example, **2** or **3**).

   c. Type **MO** to move the origin light to the origin.

   d. Note the distance between the origin light and the edge of the fabric.

   e. Use the joystick to slew the beam towards the take-on end of the table.

   f. Watch the origin light as the beam moves. As the beam moves, the origin light should stay the same distance from the edge of the fabric.

   g. If the distance between the origin light and the fabric stays the same, then your fabric is straight. Turn off the origin light and type **MO** to move the cutter head to the origin and go to “Step 8: Process the Cut File,” on page 3-11.

   OR

   h. If the distance between the origin light and the fabric changes, then your spread is not straight.

   i. Adjust the spread manually.

j. Follow steps c. through h. to check the straightness of your fabric again.

k. Turn off the origin light.

OR

2. You can use the Check Straightness (CS) command to check the straightness of your spread. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for more information about this command.

OR

3. You can manually check the straightness of your spread and use Fabric Alignment to cut a misaligned spread.

WARNING! Check that it is safe to move the cutter head and beam! Make sure nobody is near the cutter head, beam, and conveyor.

WARNING! The origin light uses a Class IIIa laser product. Do not look into the laser at any time. Do not place any reflective material, such as mirrors or polished steel, on the cutting table; laser reflections from these materials can cause eye injury.

CAUTION: If you use Fabric Alignment on a multi-bite marker, make sure that your pieces do not collide. There needs to be enough X-axis distance between neighburing pieces to prevent the cutter head from cutting through pieces that are already cut (see Align.doc in your software Readdoc utility). You also need a large enough buffer between pieces to let you rotate pieces and use Fabric Alignment.

NOTE: If you use this feature on a multi-bite marker, you should check the fabric alignment after each bite. To do this, turn on Pause Between Bites in the Bite Parameters category of the Display or Change Parameters Menu. For more information, see the *C-200B Software User's Guide* (GGT P/N: 075784000).

a. Turn on the origin light.

b. Type **MO** to move the origin light to the origin.

c. On the BCP, set the **FEEDRATE DIAL** to a low setting (such as 3).

d. Note the distance between the origin light and the edge of the spread.

e. Use the **JOYSTICK** to slew the beam towards the take-on end of the table.

f. Stop the beam before you activate a limit switch and before you slew the beam further than the take-on end of your spread.

g. Note the distance between the origin light and the edge of the spread.

h. If the origin light is the same distance from the edge of the spread as it was in step d., then your spread is straight. Turn off the origin light and type **MO** to move the cutter head to the origin and go to Step 8., on page 3-11.

OR

i. If the origin light is a different distance from the edge of the spread than it was in step d., slew the cutter head so that the origin light is the same distance from the edge that it was in step d.

j. Press the FABRIC ALIGNMENT SWITCH on the BCP twice. This sets the angle by which the fabric is not straight. The monitor displays:

Fabric Alignment Angle: n.nn degrees

CAUTION: **Do not manually adjust the straightness of the marker after you use Fabric Alignment. If you do, your spread will not be cut correctly.**

k. On the operator workstation, press **ENTER** to return to the command line.

l. Type **MO** to move the cutter head to the origin. The monitor displays:

Move in progress . . . Please wait.

and then:

Origin reported:
X= xx.xxx Y= yy.yyy

where x.xxx and y.yyy are the position of the origin. Your GERBER-cutter is now ready to cut a marker that is not straight.

4. Turn off the origin light.

Step 8: Process the Cut File

Follow these steps to start cutting:

WARNING! Check that it is safe to start cutting! Make sure nobody is near the cutter head, beam, and conveyor.

CAUTION: Make sure that table vacuum is turned on. If table vacuum is not on, your fabric will not be cut correctly. See "Step 6: Set the Origin," on page 3-6, for more information.

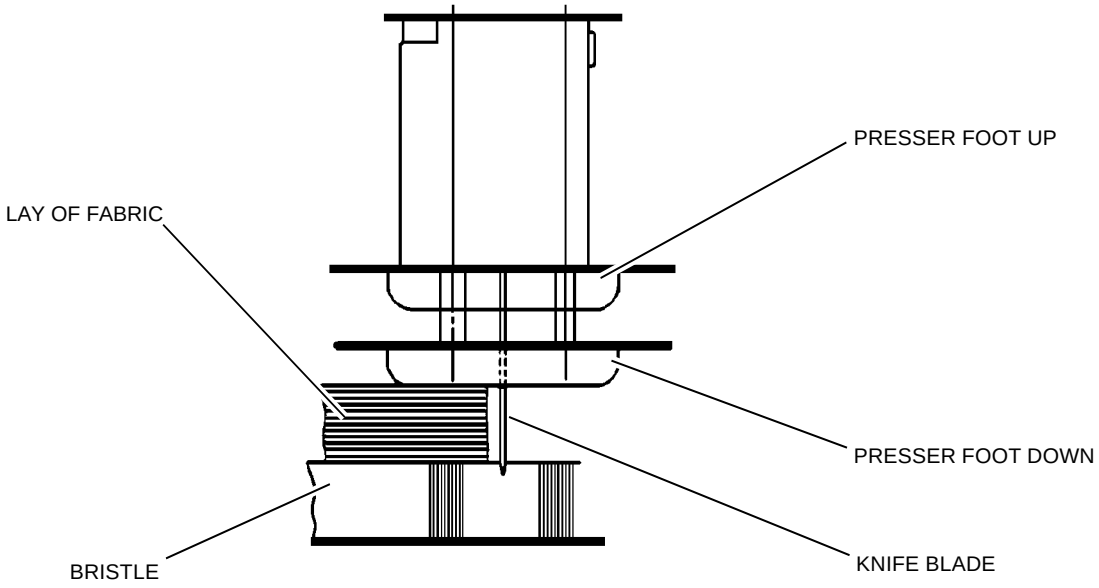
1. On the BCP, set the **FEEDRATE DIAL** for the fabric being cut (5 is a good starting speed).

2. Turn on the **KNIFE SWITCH**. The knife reciprocates (moves up and down).

3. Calibrate the Knife Intelligence Feature:

CAUTION: To preserve cut quality, GGT recommends that you calibrate Knife Intelligence before you cut each new lay.

NOTE: Knife Intelligence must be enabled before you can calibrate the Knife Intelligence Feature. See the *C-200B Software User's Manual* (GGT P/N: 075784000) for more information about Knife Intelligence.



a. Use the **JOYSTICK** to slew the cutter head so that the knife blade is just off the edge of the lay.

b. On the command line type:

NU

c. Press **ENTER**. The knife plunges then rises. The system displays:

Null Procedure Completed

d. Press **ENTER** to return to the command line.

e. Type **MO** and Press **ENTER** to move the cutter head to the origin.

4. If the knife needs sharpening, press the **SHARPEN KNIFE** switch on the BCP. This executes one sharpening cycle.

5. Press the **START SWITCH** on the BCP or **F12** on the operator workstation. As your GERBERcutter starts cutting, it displays the status screen. This screen shows the progress of cutting your marker. As your GERBERcutter cuts the pieces and moves them to the take-off ramp, remove the pieces from the cutter and throw away the scrap.

6. One of two things happens, depending on whether you are cutting a bite marker or a static marker:

a. At the end of a static marker, the system returns to the command line and displays:

Processing Complete

OR

b. If you are cutting a bite marker, the system advances the next bite onto the cutting table. The Status Screen displays the new bite. After cutting all bites in the marker, the system returns to the command line and displays:

Processing Complete

7. On the BCP:

a. Turn off the **KNIFE SWITCH**.

b. Turn off the **VACUUM SWITCH**.

Step 9: Recover from an Error

Use this procedure to start cutting after an ESTOP, certain system errors that close cut files and cause the system to lose position, or if the system loses power.

CAUTION: **Do not move the lay after an ESTOP or a system error. Moving the lay or jogging the conveyor makes it very hard to start cutting in the right place.**

NOTE: If the FEP loses power (the operator workstation screen blanks out), you must first do the procedures in "Step 2: Turn on your GERBERcutter," on page 3-2.

1. On the operator's workstation, press **F3** to restore state.

2. The system displays:

   Origin: X=x.xxx, Y=y.yyy

   where **x.xxx** and **y.yyy** are the position of the origin.

3. Press **ENTER**. The system displays:

   Cut: x
   Bite: x, Piece: x, Config: x

   where **x** is the cut file, bite, piece, and CONFIG file being processed when position is lost.

4. Press **ENTER**. The system displays:

   Bite: x, Piece: x, Config: x
   Restore State [Y/N]

   where **x** is the bite, piece, and CONFIG file being processed when position is lost.

5. You have two choices:

   a. Type **N** and press **ENTER** to quit the Restore State command. The system displays:

      Restore State Aborted.

      Press **ENTER** to return to the command line.

   OR

   b. Type **Y** and press **ENTER** to restore the state of the last cut file. If you were using a configuration file other than your default, the system displays:

      Loading Configuration File
      Please wait . . .

      and then, if you were using SBITE:

      SBITE currently in progress
      Please wait . . .

      and then, if you were using the fabric alignment feature:

      Fabric Alignment Angle: x.xx degrees

      where x.xx is the fabric alignment angle.

6. The system finds the piece where cutting stopped and displays:

   State Restored.

7. Press **ENTER** to return to the command line.

8. Type **MO** and Press **ENTER** to move the cutter head to the origin.

9. To recut the entire piece, press **F12** (**START**).

   OR

10. To finish cutting a partially cut piece:

    a. At the command line, type **DR on** to turn on dry run.

    b. Press **ENTER**. The monitor displays:

    ```
    Command executed
    Dry Run = ON
    ```

    c. Press **F12** to start dry run.

    d. Press **Esc** to stop the dry run just before the place where you want to start cutting your piece.

    e. At the command line, type **DR off** to turn off dry run.

    f. Press **ENTER**. The monitor displays:

    ```
    Command executed
    Dry Run = OFF
    ```

    g. Press **ENTER** to return to the command line.

    h. Press **F12** (**START**) to start cutting the piece.

Step 10: Do a Trim Cut

The trim cut feature lets you remove excess material, clean up rough edges, or cut material into smaller pieces. Trim cuts can be made along the X or Y-axis by using the **JOYSTICK**. The cutter stays in trim cut mode until it is idle for 15 seconds or you press stop. This lets you make several trim cuts without having to re-enter trim cut mode. Follow these instructions to do a trim cut:

> **WARNING! The origin light uses a Class IIIa laser product. Do not look into the laser at any time. Do not place any reflective material, such as mirrors or polished steel, on the cutting table; laser reflections from these materials can cause eye injury.**

1. Turn on the origin light.
2. On the BCP:
   a. Set the **FEEDRATE DIAL** at the speed you need.
   b. Turn on the **KNIFE SWITCH**.
   c. Turn on the **VACUUM SWITCH**.
   d. Use the **JOYSTICK** to move the origin light to the place you want to start cutting.
   e. Press the **TRIM CUT SWITCH**.

3. The system enters trim cut mode, and the **ERROR WARNING LIGHT** flashes on the BCP. The cutter head moves so that the knife is where you positioned the origin light.

> **WARNING! The cutter head moves to the new position when you press TRIM CUT. Make sure nothing is on the cutting surface. You may be injured or the GERBERcutter may be damaged if something is in the way of the cutter head when it moves.**

4. On the BCP, use **JOYSTICK** to move the knife through the material.

NOTE: The system stays in trim cut mode until it is idle for 15 seconds or you press stop. This lets you make several trim cuts without pressing TRIM CUT again.

5. On the BCP:

   a. Turn off the **KNIFE SWITCH**.

   b. Turn off the **VACUUM SWITCH**.

6. Turn off the origin light.

Step 11: Shut Off your GERBERcutter

Follow these instructions to shut off your GERBERcutter:

1. From the command line, type:

   quit

2. Press **ENTER**. The C-200B displays the **SYSTEM:** prompt.

3. On the cutting table, turn off circuit breaker 1.

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Chapter 4 Maintenance

4

About This Chapter

This chapter describes routine maintenance on your GERBERcutter. (It does not cover highly technical procedures or those requiring special skills. These are best left to your maintenance department or Gerber service representative.) Proper maintenance is important because it improves cut quality and extends the life of the system. Use this chapter for:

- Preventive maintenance (inspecting, cleaning, and lubricating moving parts such as gears and bearings)
- Corrective maintenance (repairing worn or broken parts)

Safety Precautions

WARNING! High voltages exist inside the C-200B controller. There are no operator-serviceable parts inside the C-200B. Only qualified personnel should perform maintenance. Contact your service technician in case of a problem. Failure to follow these instructions could cause injury or death.

WARNING! You may get seriously hurt if you do not turn off the C-200B and vacuum generator when instructed. When the C-200B is on, it applies power to the cutting table and vacuum generator. Parts could move suddenly.

WARNING! The origin light on the cutter head employs a Class IIIa laser product. Do not look along the axis of the laser light without protective eyewear. Do not place reflective material on the cutting table, as the reflection from the laser light may cause injury. Be sure you unplug the cable connector on the origin light before performing any maintenance on the system. Failure to follow these warnings can cause injury.

Circuit Breakers

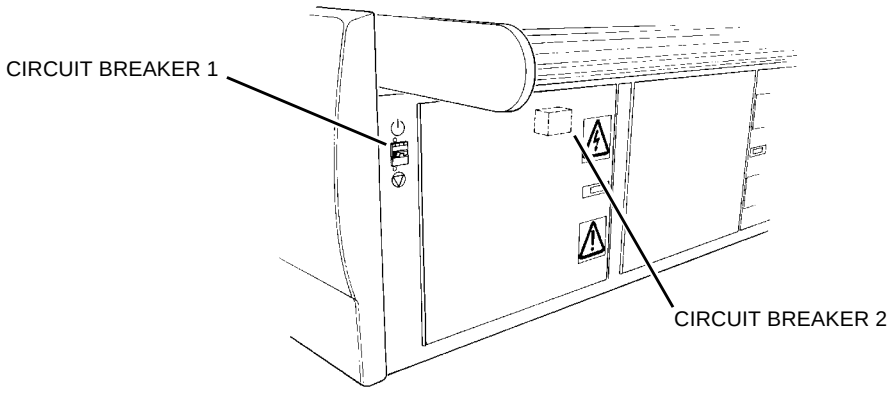
The GERBERcutter has two main circuit breakers on the cutting table. Both circuit breakers must be turned on for the system to run properly.

Circuit breaker 1 provides power for the C-200B controller, servo motors, and conveyor. It is located in the upper left corner of the take-off end. Use this circuit breaker to turn on the GERBERcutter.

WARNING! Circuit breaker 2 is not for use by the operator. Do not turn circuit breaker 2 on or off. High voltages exist within the vacuum electrics enclosure and inside the C-200B controller. Under certain conditions, dangerous voltages may exist even when a power cable is disconnected. Never perform any work inside the C-200B controller as there are no operator-serviceable parts inside.

Circuit breaker 2 provides power for the vacuum generator. It is located in the vacuum electrics enclosure. This circuit breaker is always left on.

WARNING! Three phase power for the vacuum generator and single phase power for the control unit both enter the C-200B controller. BOTH power cords must be disconnected for a safe condition to exist within the C-200B enclosure. A single-switch main disconnect for both of these power supplies must be provided according to local electrical codes.



Ordering Spare Parts

If you find a broken or worn part while performing preventive maintenance, see “Customer Support” on page xiv. This section tells how to order any spare parts you may need.

Tools Available

The following is a partial list of tools that are available from GGT. For more complete information, contact your GGT sales representative.

Tool	GGT Part No.
3⁄8-in. drive ratchet wrench	945500090
3⁄8-in. drive socket set	945500092
3-in. extension for 3⁄8-in. drive ratchet wrench	945500091
4-in. combination wrench, 11⁄32-in.	945500042
6-in. adjustable wrench	944002510
50-lb spring scale	945500252
belt deflection gauge	045412000
belt tensioner	062031000
combination wrench set, 1⁄4 to 3⁄4-in.	944002401
external snap ring pliers	944003901
grease gun	944233101
hex wrench	045237000
MCC air filter	460500106
metric combination wrench set	945500093
metric right-angle and ball combination hex key set	945500094
metric right-angle hex key set	945500079
metric T-handle hex key set	945500089
oiler	653000000
pliers	944003903
screwdriver set	944211601
split collar	324500026
standard combination wrench set	944002401
standard right-angle hex key set	944022402
standard T-handle hex key set	945500051
toolbox	945500033
vise grip	945500002
Y-axis motor belt tensioning tool	073551000

Maintenance Summary and Schedule

Table 4-1 summarizes the preventive and corrective maintenance procedures covered in this chapter. It lists locations and parts alphabetically. The maintenance schedule, Table 4-2, conveniently lists procedures by how often you must do them. The reference figures, starting on page 4-15, help you find the various parts of the GERBERcutter.

CAUTION: **In addition to the maintenance recommended in Tables 4-1 and 4-2, you must inspect all belt tensions and adjust gear backlash after the first 48 hours of operation of a newly installed GERBERcutter or belt. This inspection and adjustment is needed to ensure the proper break-in of your GERBERcutter. Failure to do this maintenance may result in damage to your GERBERcutter.**

Table 4-1. Maintenance Summary

Major Assembly	Assembly	Component	When	Action	Procedure Page	Reference Figure
beam	BCP cover	N/A	as needed	remove	4-41	4-3
				install	4-41	
	beam	N/A	weekly	inspect alignment	4-25	4-1
			as needed	adjust alignment	4-25	
	cables	N/A	weekly	inspect	4-40	4-3
	cutter head drive belt	N/A	weekly	inspect	4-28	
				adjust	4-29	
	remote-end cover	N/A	as needed	remove	4-42	
				install	4-42	
	roundways	N/A	daily	inspect	4-27	
				clean/lubricate	4-27	
	X-axis drive belts	N/A	weekly	inspect	4-30	
			as needed	adjust	4-31	
	X-axis gears	N/A	weekly	adjust	4-35	
	Y-axis drive belts	N/A	weekly	inspect	4-32	
			as needed	adjust	4-34	
C-200B controller	electrics enclosure	MCC air filter	each shift	inspect	4-158	4-1
			as needed	clean	4-159	
CTOT	CTOT	N/A	as needed	open	4-168	
				close	4-169	
	drive chain	N/A	each 6 months	lubricate	4-169	

Table 4-1 (Cont'd). Maintenance Summary

Major Assembly	Assembly	Component	When	Action	Procedure Page	Reference Figure
S-5200 cutter head	C-axis assembly	C-axis assembly	weekly	inspect	4-47	4-6
		C-axis driven gear	weekly	inspect	4-48	
			as needed	adjust	4-49	
		knife blade	each shift	inspect	4-54	
			as needed	remove	4-56	
				install	4-57	
		knife drive belt	weekly	inspect	4-50	
			as needed	adjust	4-51	
		presser foot	each shift	inspect	4-59	
			as needed	clean/lubricate	4-60	
	cover	back	as needed	remove	4-46	
				install	4-46	
		front	as needed	open	4-44	4-3
				close	4-44	
				remove	4-45	
				install	4-45	
	drill	drill bit	each shift	inspect	4-78	4-7
			as needed	remove	4-79	
				install	4-80	
		drive belt	weekly	inspect	4-75	
			as needed	remove	4-76	
				install	4-76	
				adjust	4-77	
	elevator roundways	N/A	each shift	inspect	4-70	4-6
			as needed	clean/lubricate	4-70	
	Lancaster balancer	belt	weekly	inspect	4-52	
			as needed	adjust	4-53	
	sharpener	drive belt	each shift	inspect	4-64	
			as needed	remove	4-65	
				install	4-66	
		grinding pulley	each shift	inspect	4-67	
				clean	4-68	
			as needed	remove	4-67	
				install	4-69	
	up/down stops	N/A	as needed	inspect	4-71	
				adjust	4-74	

Table 4-1 (Cont'd). Maintenance Summary

Major Assembly	Assembly	Component	When	Action	Procedure Page	Reference Figure
S-7200 cutter head	C-axis assembly	C-axis assembly	weekly	inspect	4-87	4-4
		C-axis drive belt	weekly	inspect	4-88	
			as needed	remove	4-88	
			as needed	install	4-89	
			as needed	adjust	4-90	
		knife blade	each shift	inspect	4-96	
			as needed	remove	4-98	
				install	4-99	
		knife drive belts	weekly	inspect	4-91	
			as needed	adjust	4-92	
		presser foot	each shift	inspect	4-101	
			as needed	clean/lubricate	4-102	
	cover	back	as needed	remove	4-86	
				install	4-86	
		front	as needed	open	4-84	4-3
				close	4-84	
				remove	4-85	
				install	4-85	
	drill	drill bit	each shift	inspect	4-122	4-5
			as needed	remove	4-123	
				install	4-124	
		drive belt	weekly	inspect	4-119	
			as needed	remove	4-120	
				install	4-120	
				adjust	4-121	
	elevator flatway	N/A	each shift	inspect	4-113	4-4
			as needed	clean/lubricate	4-113	
	Lancaster balancer	belt	weekly	inspect	4-94	
			as needed	adjust	4-95	

Table 4-1 (Cont'd). Maintenance Summary

Major Assembly	Assembly	Component	When	Action	Procedure Page	Reference Figure
S-7200 cutter head	sharpener	drive belt	each shift	inspect	4-106	4-4
			as needed	remove	4-107	
				install	4-108	
		grinding pulley	each shift	inspect	4-110	
				clean	4-111	
			as needed	remove	4-110	
				install	4-112	
	up/down stops	N/A	as needed	inspect	4-114	
				adjust	4-117	
cutting table	conveyor	BRISTLE SQUARES	daily	inspect	4-133	4-1
			as needed	clean	4-134	
				rearrange	4-136	
		drive assembly	each 6 months	lubricate	4-143	
		drive chains	each 6 months	lubricate	4-144	
		slats	weekly	inspect	4-138	
			as needed	remove	4-140	
				install	4-141	
	flatways	N/A	each shift	inspect	4-129	4-3
			as needed	clean	4-129	
	racks	N/A	each shift	inspect	4-128	4-1
			as needed	clean	4-128	
	side panels	N/A	as needed	remove	4-131	
				install	4-131	
	table air filter	N/A	daily	inspect	4-145	4-8
			as needed	clean	4-146	
	take-on ramp	N/A	as needed	remove	4-132	
				install	4-132	
film dispenser	plastic film roll	N/A	as needed	remove	4-163	4-1
				install	4-164	
lateral drive	wheels	N/A	each year	lubricate	4-171	
mast	power/air lines	N/A	weekly	inspect	4-161	4-1 4-9
	warning light	N/A	each shift	inspect	4-162	

Table 4-1 (Cont'd). Maintenance Summary

Major Assembly	Assembly	Component	When	Action	Procedure Page	Reference Figure
operator workstation	keyboard	N/A	each shift	inspect	4-43	4-2
	monitor	N/A	each shift	inspect	4-43	
			as needed	clean	4-43	
resealer	plastic film	N/A	daily	inspect	4-166	4-1
			as needed	remove	4-166	
				install	4-167	
vacuum generator	N/A	drive belts	each 6 months	inspect	4-151	4-10
			as needed	remove	4-155	
			as needed	install	4-156	
			as needed	adjust	4-153	
	motor	N/A	as needed	inspect	4-147	
			as needed	adjust	4-149	
			each 6 months	lubricate	4-150	
	turbine	N/A	each 6 months	lubricate	4-157	

Table 4-2. Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
each shift	C-200B controller	electrics enclosure	MCC air filter	inspect	4-158	4-1
	S-5200 cutter head	drill	drill bit	inspect	4-78	4-7
		elevator roundways	N/A	inspect	4-70	4-6
		C-axis assembly	knife blade	inspect	4-54	
			presser foot	inspect	4-59	
		sharpener	grinding pulley	inspect	4-67	
				clean	4-68	
			drive belt	inspect	4-64	
	S-7200 cutter head	drill	drill bit	inspect	4-122	4-5
		elevator flatway	N/A	inspect	4-113	4-4
		C-axis assembly	knife blade	inspect	4-96	
			presser foot	inspect	4-101	
		sharpener	grinding pulley	inspect	4-110	
				clean	4-111	
			drive belt	inspect	4-106	
	cutting table	flatways	N/A	inspect	4-129	4-3
		racks	N/A	inspect	4-128	4-1
	mast	warning light	N/A	inspect	4-162	4-1 4-9
	operator workstation	keyboard	N/A	inspect	4-43	4-2
		monitor	N/A	inspect	4-43	
daily	beam	roundways	N/A	inspect	4-27	4-3
				clean/lubricate	4-27	
	cutting table	conveyor	BRISTLE SQUARES	inspect	4-133	4-1
		table air filter	N/A	inspect	4-145	4-8
	resealer	plastic film	N/A	inspect	4-166	4-1

Table 4-2 (Cont'd). Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
weekly	beam	beam	N/A	inspect alignment	4-25	4-3
		cables	N/A	inspect	4-40	
		cutter head drive belt	N/A	inspect	4-28	
				adjust	4-29	
		X-axis drive belts	N/A	inspect	4-30	
		X-axis gears	N/A	adjust	4-35	
		Y-axis drive belts	N/A	inspect	4-32	
	S-5200 cutter head	C-axis assembly	C-axis assembly	inspect	4-47	4-6
			C-axis driven gear	inspect	4-48	
			knife drive belts	inspect	4-50	
		drill	drive belt	inspect	4-75	4-7
		Lancaster balancer	belt	inspect	4-52	4-6
	S-7200 cutter head	C-axis assembly	C-axis assembly	inspect	4-87	4-4
			C-axis drive belt	inspect	4-88	
			knife drive belts	inspect	4-91	
		drill	drive belt	inspect	4-119	4-5
		Lancaster balancer	belt	inspect	4-94	4-4
	cutting table	conveyor	slats	inspect	4-138	4-1
	mast	power/air lines	N/A	inspect	4-161	4-1 4-9

Table 4-2 (Cont'd). Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
each 6 months	CTOT	drive chain	N/A	lubricate	4-169	4-1
	cutting table	conveyor	drive assembly	lubricate	4-143	
			drive chains	lubricate	4-144	
	vacuum generator	N/A	drive belts	inspect	4-151	4-10
		motor	N/A	lubricate	4-150	
		turbine	N/A	lubricate	4-157	
each year	lateral drive	wheels	N/A	lubricate	4-171	
as needed	beam	beam	N/A	adjust alignment	4-25	4-3
		BCP cover	N/A	remove	4-41	
				install	4-41	
		remote end cover	N/A	remove	4-42	
				install	4-42	
		X-axis drive belts	N/A	adjust	4-31	
		Y-axis drive belts	N/A	adjust	4-34	
	CTOT	N/A	N/A	open	4-168	4-1
				close	4-169	
	S-5200 cutter head	C-axis assembly	C-axis driven gear	adjust	4-49	4-6
			knife blade	remove	4-56	
				install	4-57	
			knife drive belts	adjust	4-51	
			presser foot	clean/lubricate	4-60	
		drill	drill bit	remove	4-79	4-7
				install	4-80	
			drive belt	remove	4-76	
				install	4-76	
				adjust	4-77	

Table 4-2 (Cont'd). Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
as needed	S-5200 cutter head	elevator roundways	N/A	clean/lubricate	4-70	4-6
		cover	back	remove	4-46	
				install	4-46	
			front	open	4-44	4-3
				close	4-44	
				remove	4-45	
				install	4-45	
		Lancaster balancer	belt	adjust	4-53	4-6
		sharpener	drive belt	remove	4-65	
				install	4-66	
			grinding pulley	remove	4-67	
				install	4-69	
		up/down stops	N/A	inspect	4-71	
				adjust	4-74	
	S-7200 cutter head	C-axis assembly	C-axis drive belt	remove	4-88	4-4
				install	4-89	
				adjust	4-90	
			knife blade	remove	4-98	
				install	4-99	
			knife drive belts	adjust	4-92	
			presser foot	clean/lubricate	4-102	
			drill bit	remove	4-123	4-5
				install	4-124	
			drive belt	remove	4-120	
				install	4-120	
				adjust	4-121	

Table 4-2 (Cont'd). Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
as needed	S-7200 cutter head	elevator flatway	N/A	clean/lubricate	4-113	4-4
		cover	back	remove	4-86	
				install	4-86	
			front	open	4-84	
				close	4-84	
				remove	4-85	
				install	4-85	
		Lancaster balancer	belt	adjust	4-95	4-4
		sharpener	drive belt	remove	4-107	
				install	4-108	
			grinding pulley	remove	4-110	
				install	4-112	
		up/down stops	N/A	inspect	4-114	
				adjust	4-117	
	C-200B controller	electrics enclosure	MCC air filter	clean	4-159	4-1
	cutting table	conveyor	BRISTLE SQUARES	clean	4-134	
				rearrange	4-136	
			slats	remove	4-140	
				install	4-141	
		flatways	N/A	clean	4-129	4-3
		racks	N/A	clean	4-128	4-1
		side panels	N/A	remove	4-131	
				install	4-131	
		table air filter	N/A	clean	4-146	4-8
		take-on ramp	N/A	remove	4-132	
				install	4-132	

Table 4-2 (Cont'd). Maintenance Schedule

When	Major Assembly	Assembly	Component	Action	Procedure Page	Reference Figure
as needed	film dispenser	plastic film roll	N/A	remove	4-163	4-1
				install	4-164	
	operator workstation	monitor	N/A	clean	4-43	4-2
	resealer	plastic film	N/A	remove	4-166	4-1
				install	4-167	
	vacuum generator	N/A	drive belts	remove	4-155	4-10
				install	4-156	
				adjust	4-153	
		motor	N/A	inspect	4-147	
				adjust	4-149	

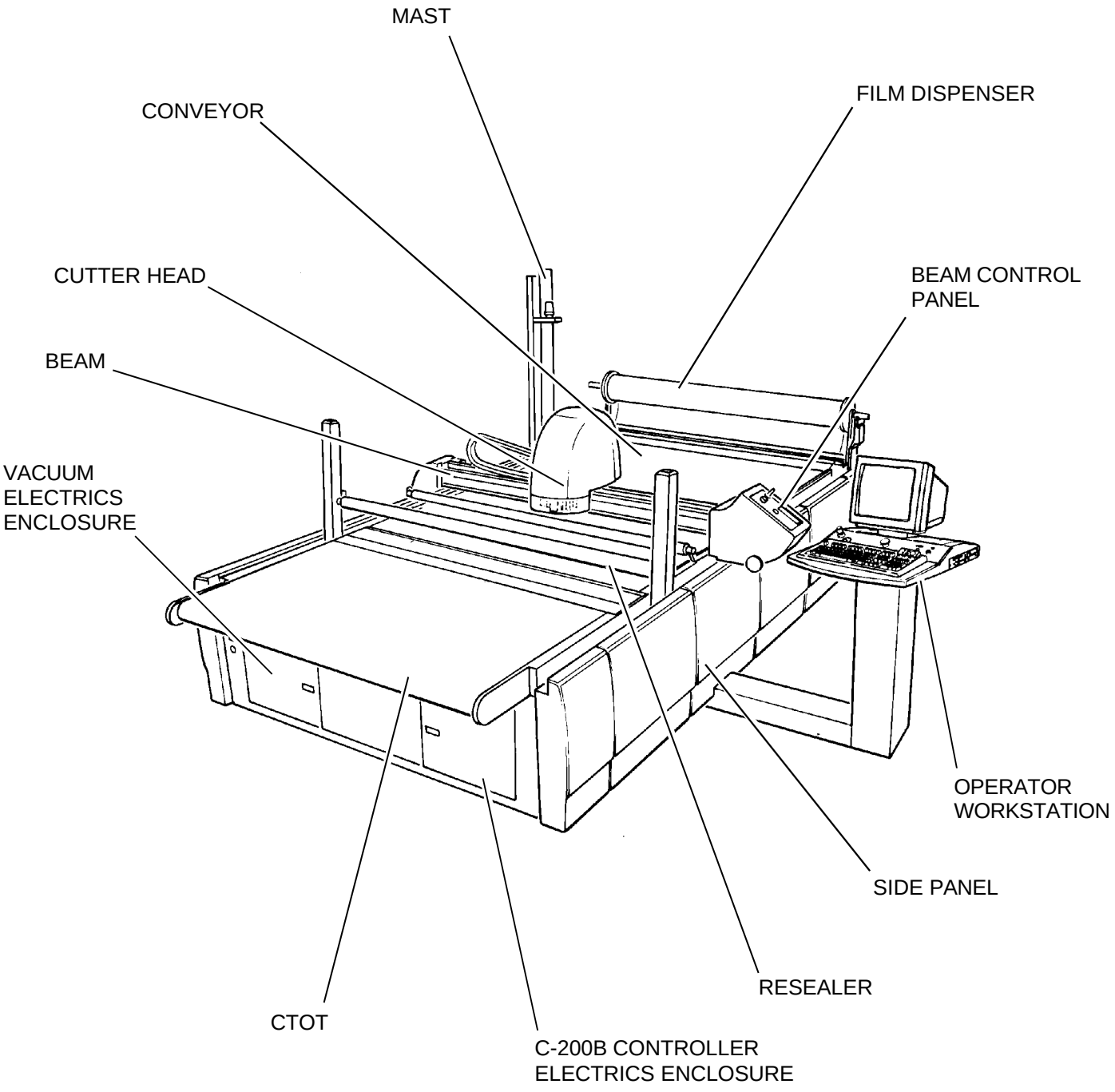


Figure 4-1. Cutting Table

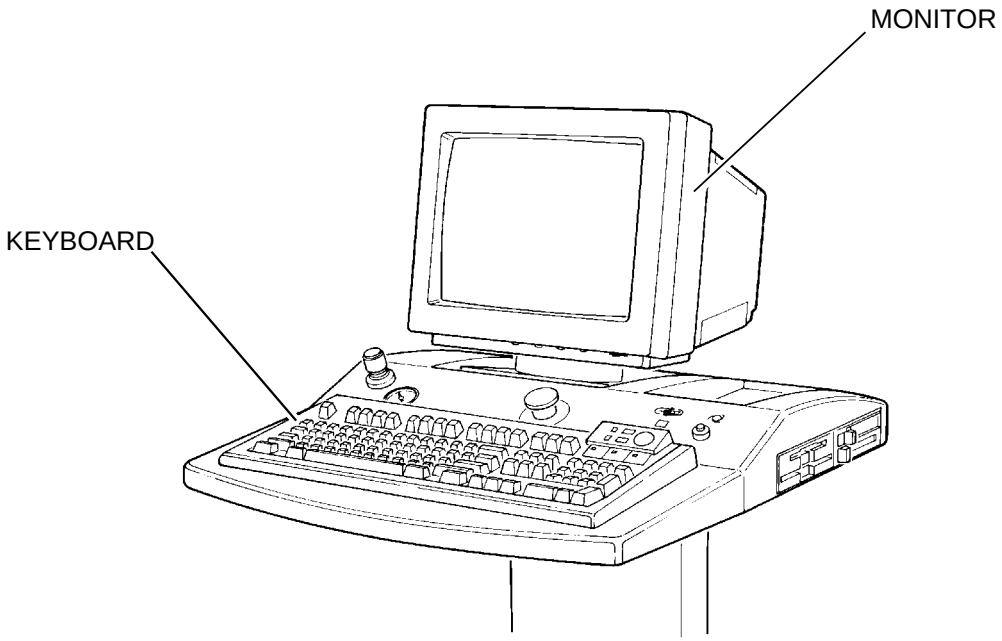


Figure 4-2. Operator Workstation

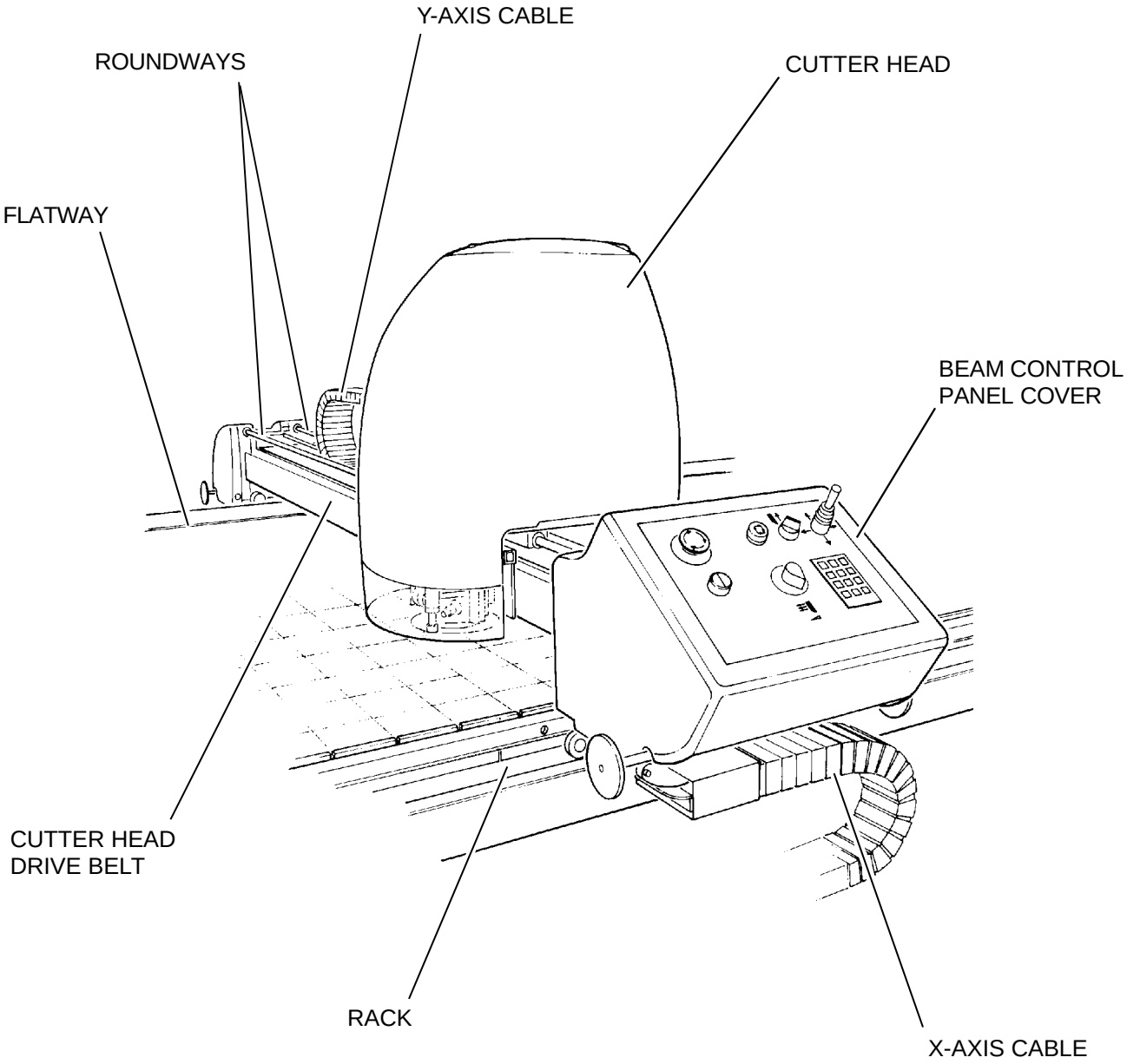


Figure 4-3. Cutter Head and Beam

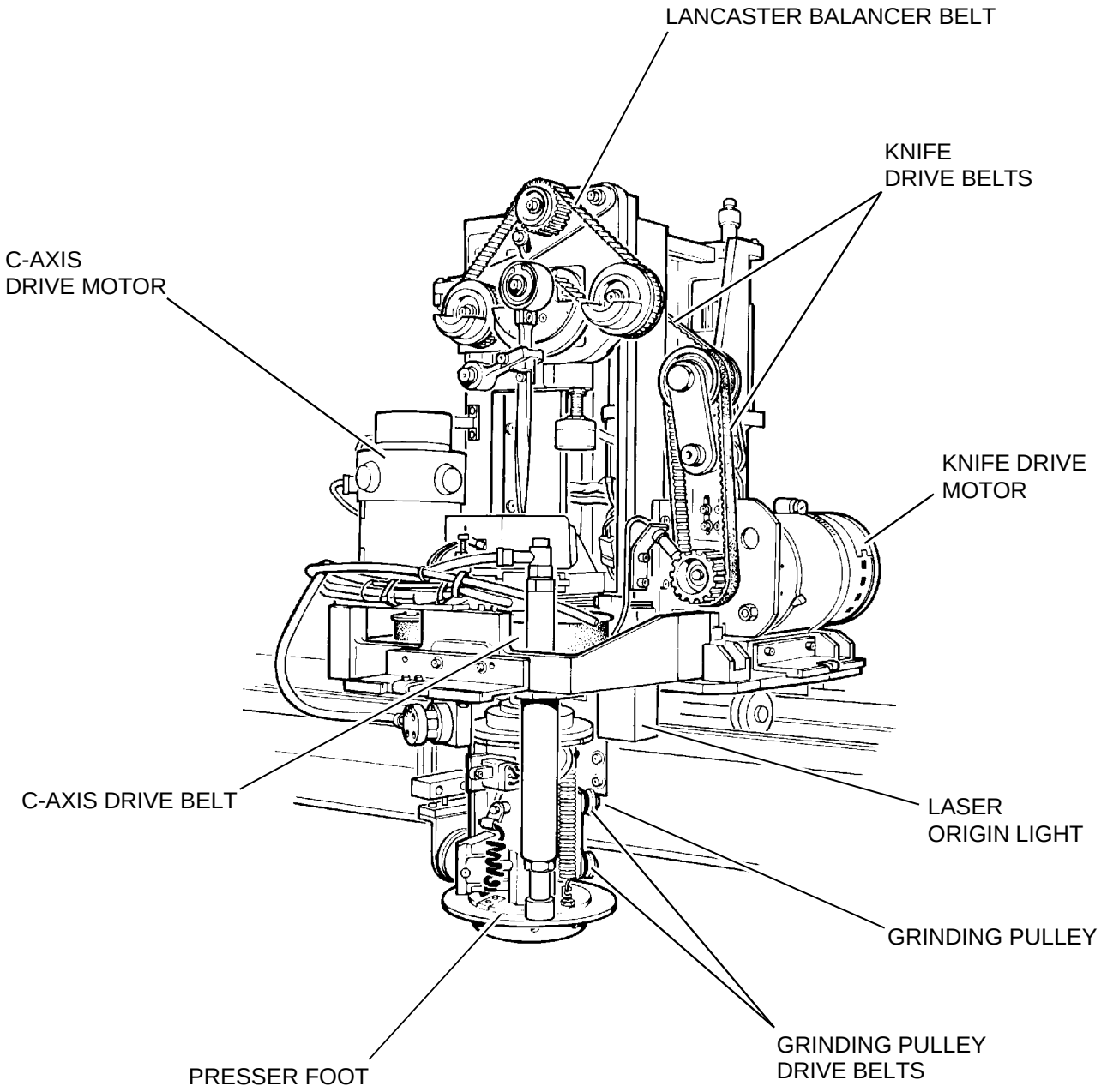


Figure 4-4. S-7200 Cutter Head

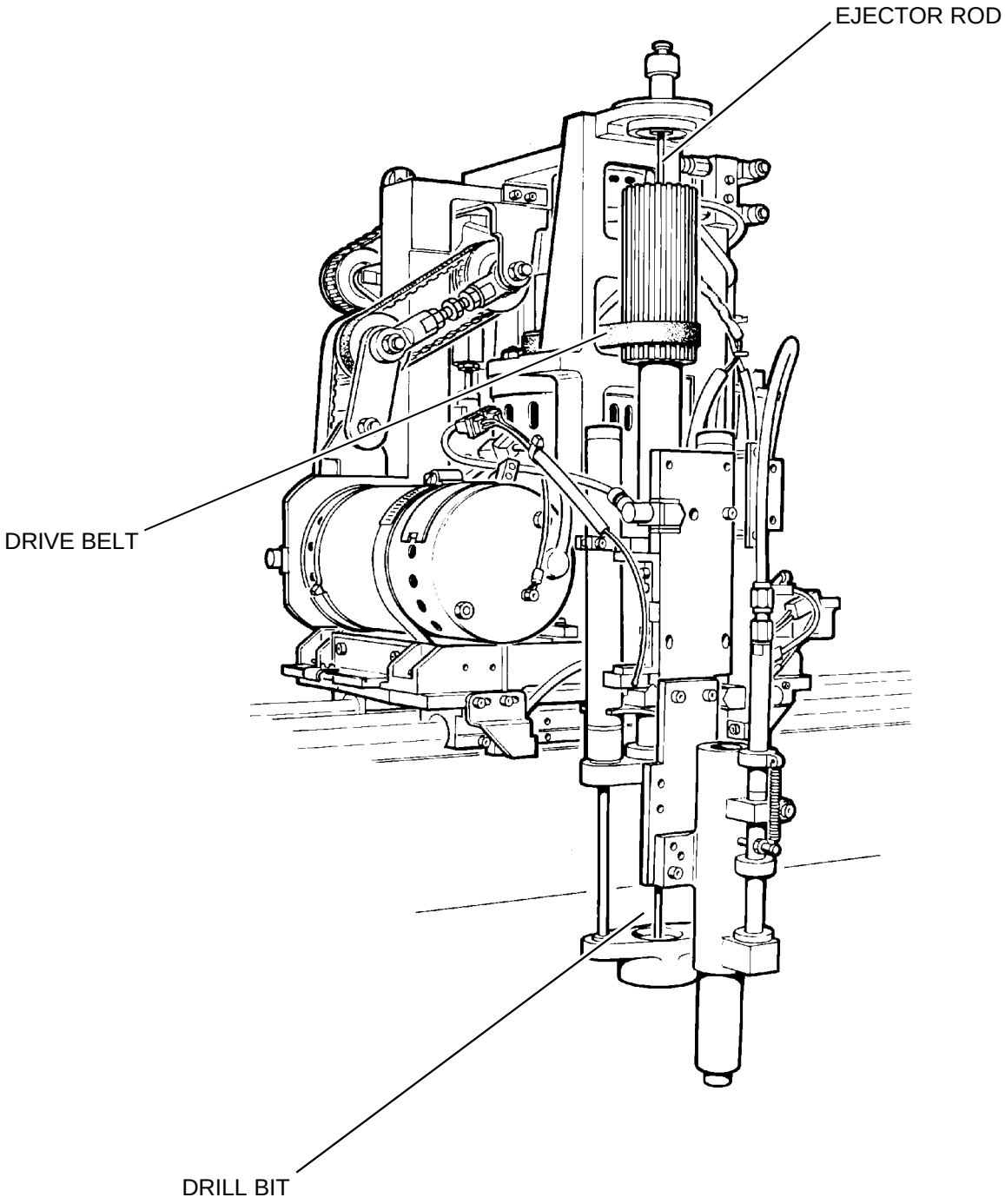


Figure 4-5. S-7200 Drill Assembly

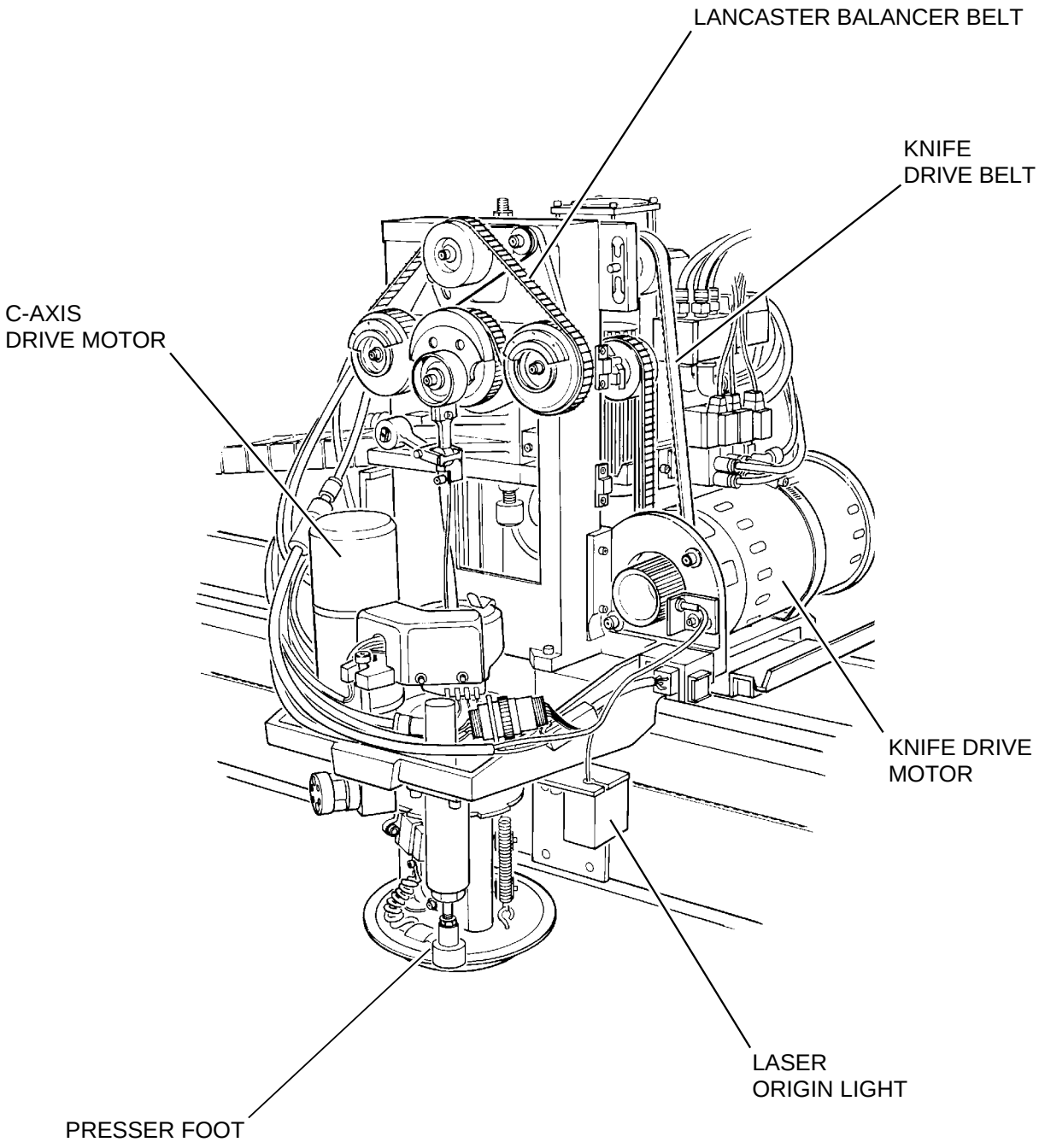


Figure 4-6. S-5200 Cutter Head

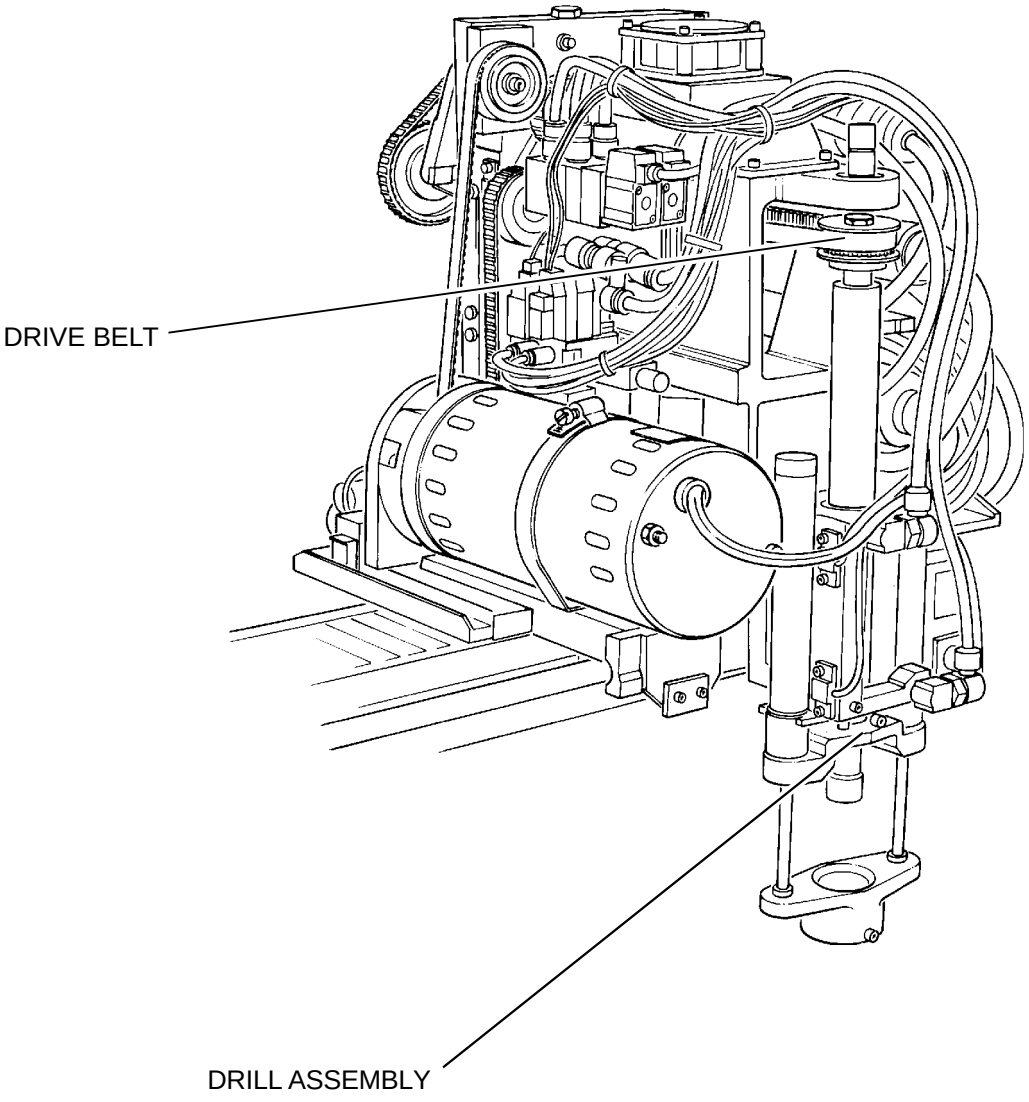


Figure 4-7. S-5200 Drill Assembly

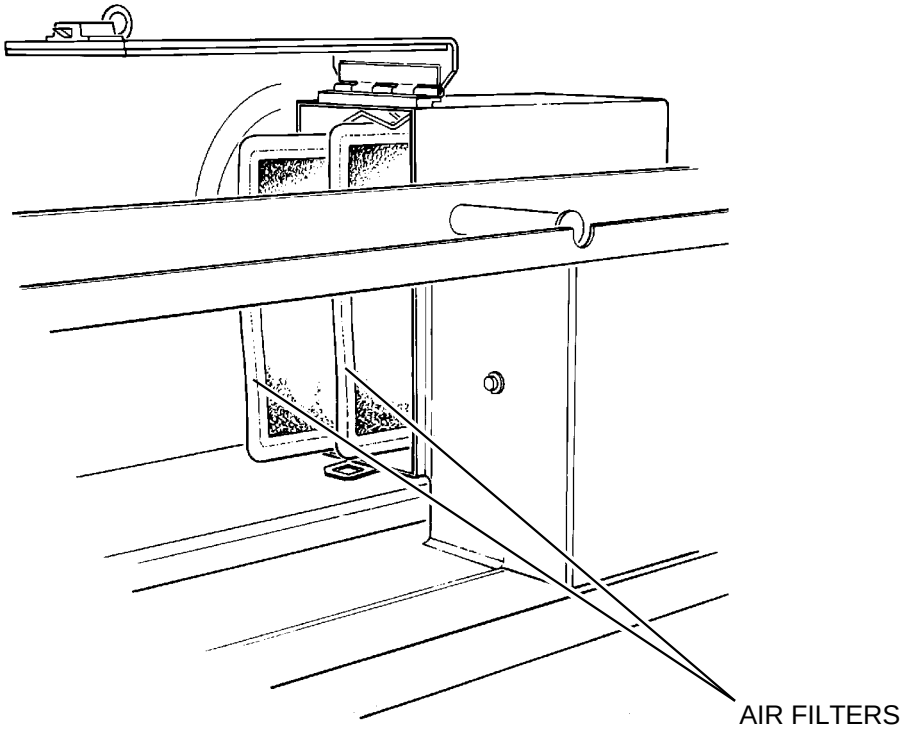


Figure 4-8. Table Air Filters

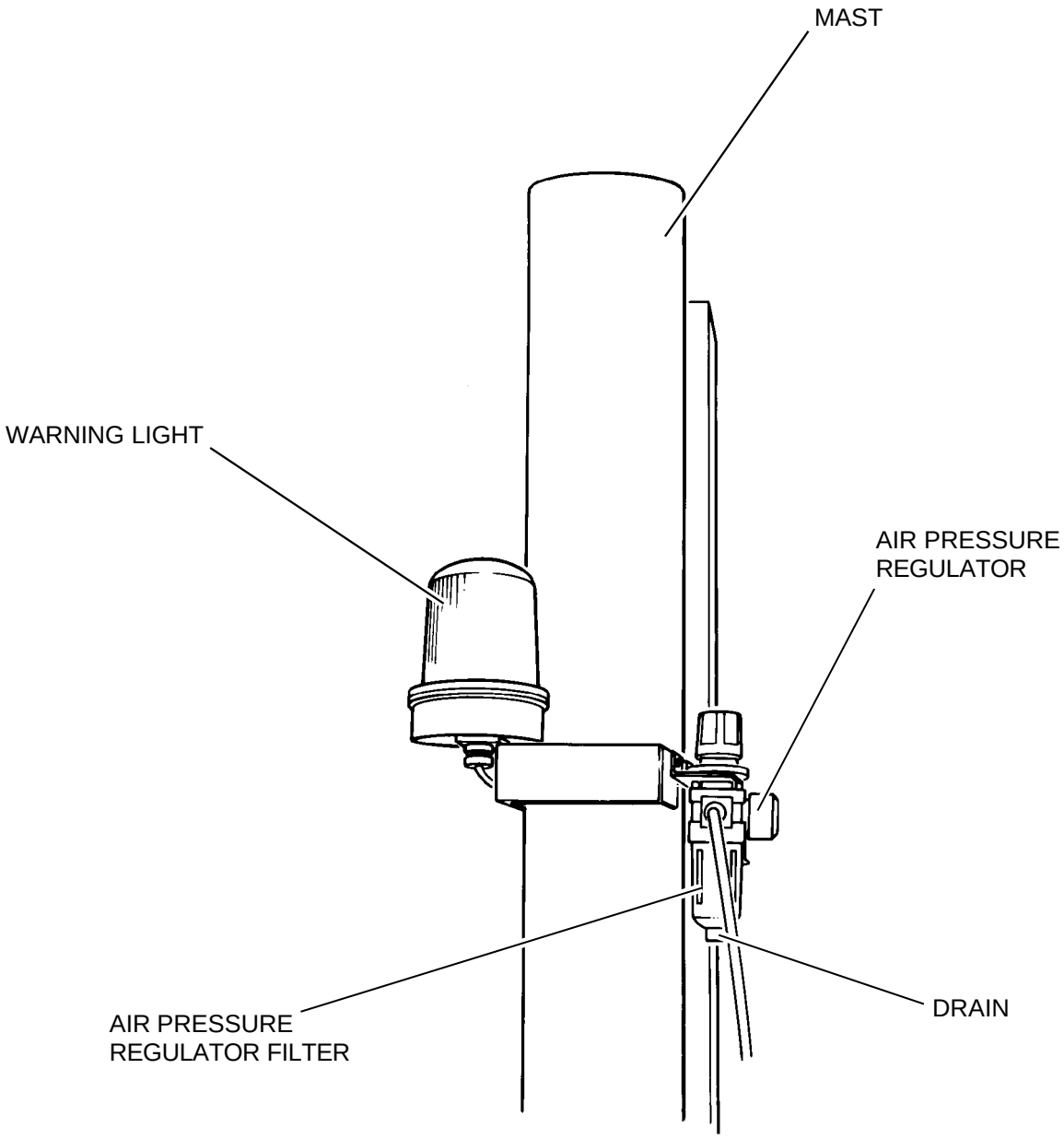


Figure 4-9. Mast

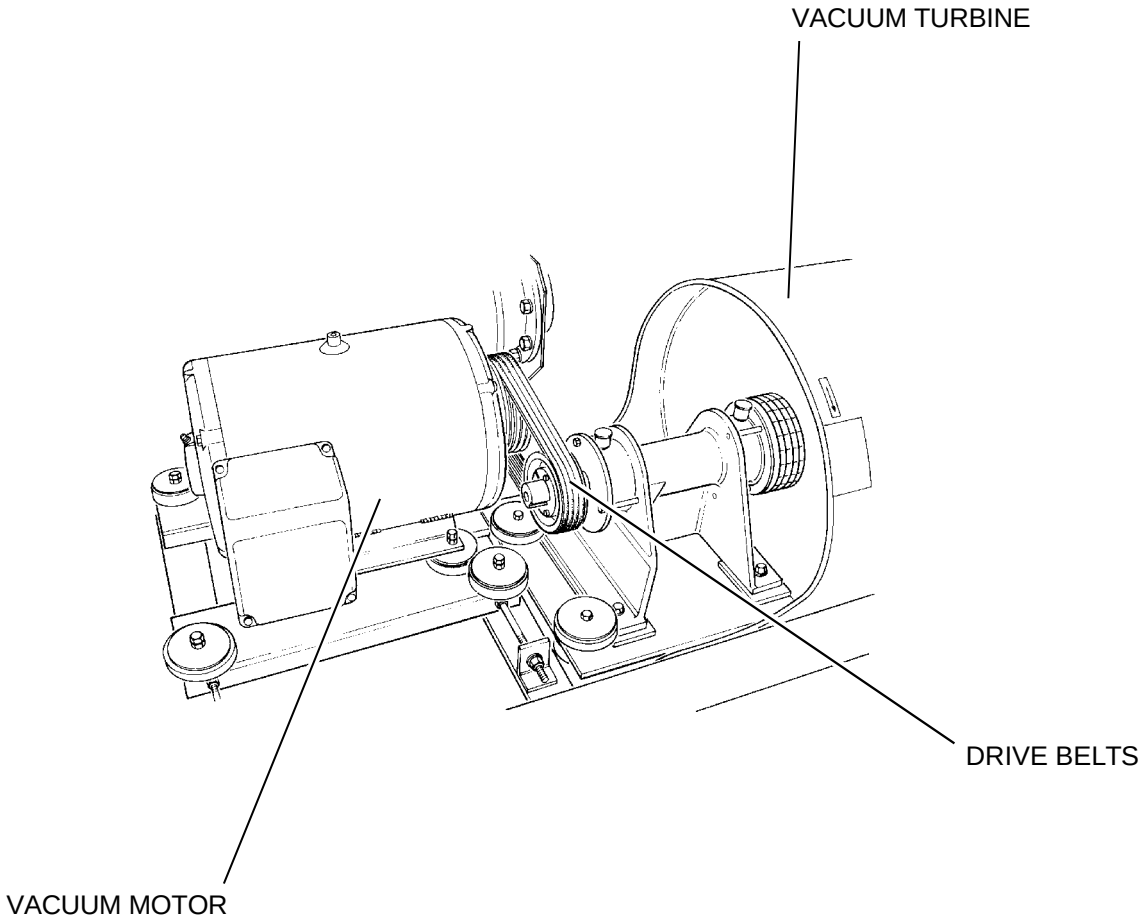


Figure 4-10. Vacuum Generator

Beam

The beam (Figure 4-3) carries the cutter head on two roundways. Electric motors drive the beam along racks on the cutting table and move the cutter head along the beam. The combined motions of the beam and cutter head let the knife cut complex patterns.

Required Tools and Supplies

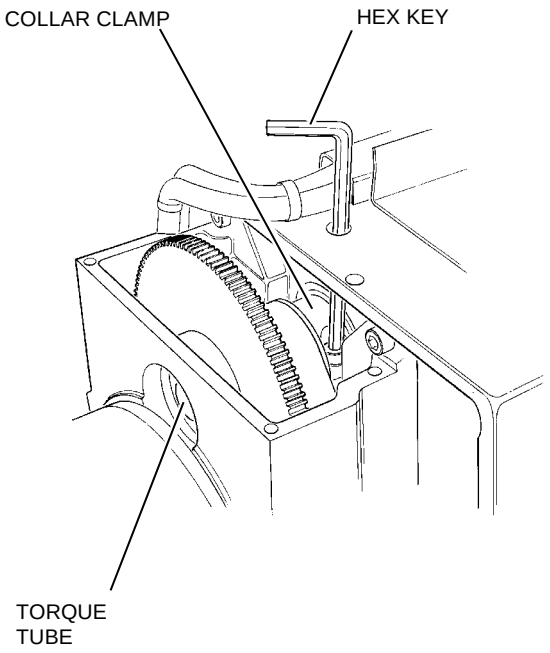
Item	GGT Part No.
metric T-handle hex key set	945500051
paper, 1.5 m x 1.5 m (60 in. x 60 in.)	N/A

Inspect Alignment

1. Turn on the C-200B controller.
2. Run the C-200B program.
3. Run the Beam Square Test (see the *C-200B Software User's Guide*, GGT P/N: 075784000). If the beam is not square, adjust the beam alignment.
4. Exit the C-200B program.
5. Turn off the C-200B controller.

Adjust Alignment

1. Turn off the C-200B controller.
2. Remove the remote end cover (page 4-42).
3. Loosen the collar clamp on the right end torque tube.
   a. Put the end of a hex key into the access hole.
   b. Insert the hex key into the screw on the collar clamp. You may need to move the beam forward or backward so that the collar clamp screw is in the correct position.
   c. Loosen the collar clamp screw by turning it counterclockwise.



d. Remove the hex key from the access hole.

CAUTION: Do not move the left side of the beam. To adjust the beam square you only move the right side of the beam.

4. Align the beam by moving the right side of the beam. The right side of the beam rides on the right-side rack. To align the beam, move it only slightly in either direction.

   a. If the +Y end of the beam leads the -Y end, move the right end of the beam back towards the take-on end of the table.

   OR

   b. If the -Y end of the beam leads the +Y end, move the right end of the beam forwards towards the take-off end of the table.

5. Tighten the collar clamp screw with the T-handled hex key.

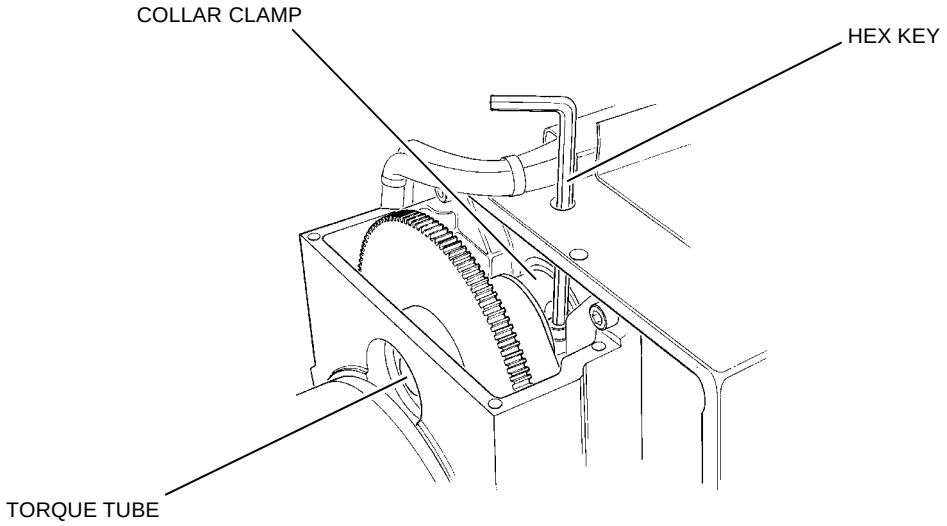
6. Install the right-end cover (page 4-42).

7. Turn on the C-200B controller.

8. Run the C-200B program.

9. Run the Beam square test (see the *C-200B Software User's Guide*, GGT P/N: 075784000).

10. If the beam is not square, repeat steps 1. through 10. until the beam is square.



Roundways

The roundways support and guide the cutter head as it travels along the beam. Each roundway is a round shaft that runs the length of the beam. Each roundway must be clean, lightly lubricated, and free of scratches so the cutter head can move freely.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
SAE 10 non-detergent oil	N/A

Inspect

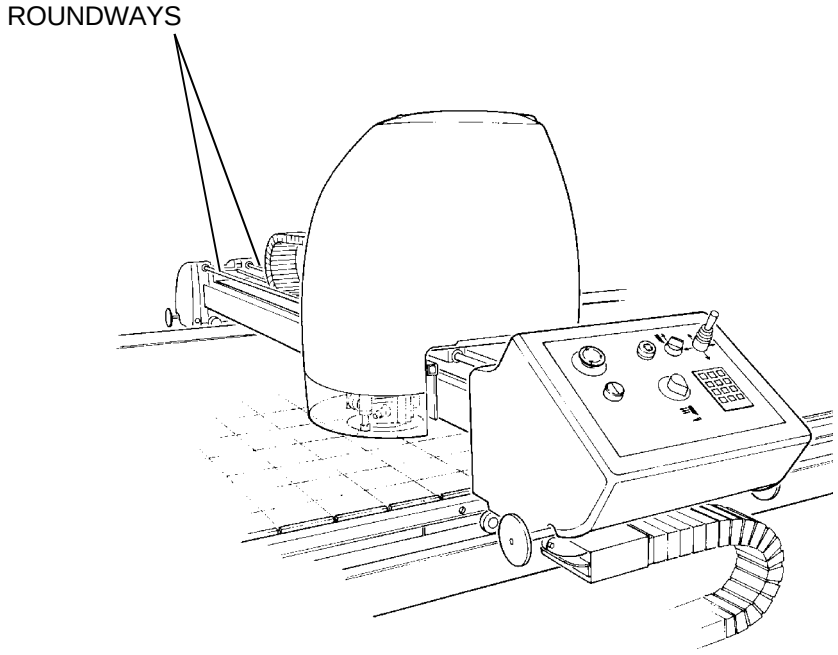
1. Turn off the C-200B controller.
2. Inspect the roundways for dirt and built-up lint. Clean and lubricate the roundways, if needed.
3. Inspect the roundways for scratches, nicks, and gouges. These defects can damage the roundway bearings in the cutter head. If you find any of these defects, call your service technician immediately.
4. Turn on the C-200B controller.

Clean/Lubricate

1. Turn off the C-200B controller.
2. Wipe the roundways with a lightly oiled shop rag. This cleans and lubricates the roundways.

CAUTION: **Excess oil is thrown onto fabric and damages it. Use as little oil as possible. It is better to lubricate lightly and more frequently than it is to apply one heavy coat.**

3. Turn on the C-200B controller.



Cutter Head Drive Belt

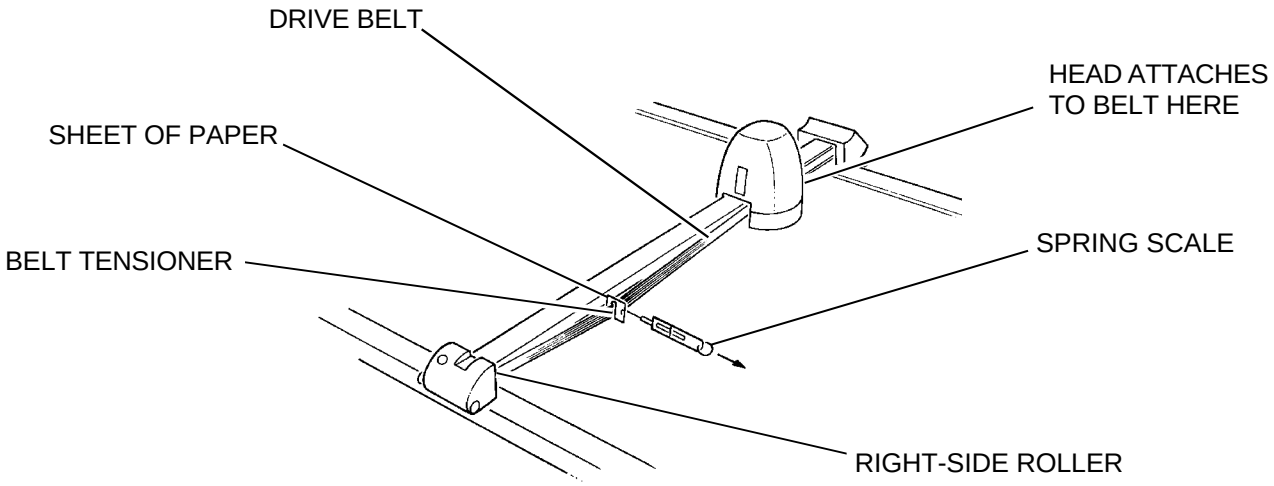
The cutter head drive belt moves the cutter head along the beam. The drive belt must be properly tensioned and free of defects to ensure accurate cutting.

Required Tools and Supplies

Item	GGT Part No.
belt tensioner	078606000
metric right-angle hex key set	945500079
sheet of paper	N/A
spring scale, 0 - 23 kg (0 - 50 lb)	945500252

Inspect

1. Inspect the drive belt for nicks, cuts, gouges, or fraying.
   a. Turn on the C-200B controller.
   b. Slew the cutter head so you can see the entire drive belt.
   c. Call your service technician if you see any of these defects.
2. Check drive belt tension.
   a. Using the slew keys, move the cutter head to the left end of the beam. Move the cutter head so that the left side of the clamp that attaches the cutter head to the drive belt is 190.5 cm (75 in.) from the place where the drive belt touches the pulley on the right side of the beam.
   b. Turn off the C-200B controller.
   c. Place the belt tensioner on the drive belt halfway between the cutter head cover and the remote-end cover.
   d. Put a small piece of paper between the belt tensioner and beam. The belt tensioner should hold the paper against the beam.
   e. Attach a spring scale to the belt tensioner.
   f. Pull the spring scale until the paper falls from between the beam and belt tensioner. The spring scale should read 0.91 to 1.81 kg (2 to 4 lb).
   g. If tension is incorrect, adjust the cutter head drive belt tension.
3. Remove the belt tensioner.
4. Turn off the C-200B controller.



Adjust

1. Turn on the C-200B controller.

2. Using the slew keys, move the cutter head to the left end of the beam. Move the cutter head so that the left side of the clamp that attaches the cutter head to the drive belt is 190.5 cm (75 in.) from the place where the drive belt touches the pulley on the right side of the beam.

3. Turn off the C-200B controller.

4. Remove the remote-end cover (page 4-42).

5. Adjust drive belt tension:

CAUTION: Make the same adjustment to both adjusting screws. Otherwise, you may misalign the tracking of the drive belt.

   a. Turn the adjustment screws clockwise to increase tension.

   OR

   b. Turn the adjustment screws counterclockwise to decrease tension.

6. Check drive belt tension.

   a. Put a small piece of paper between the belt tensioner and beam. The belt tensioner should hold the paper against the beam.

   b. Attach a spring scale to the belt tensioner.

   c. Pull the spring scale until the paper falls from between the beam and belt tensioner. The spring scale should read 0.91 to 1.81 kg (2 to 4 lb).

   d. Remove the belt tensioner and spring scale from the drive belt.

   e. Repeat steps 5. and 6. until belt tension is correct.

7. Check drive belt tracking.

   a. Turn on the C-200B controller.

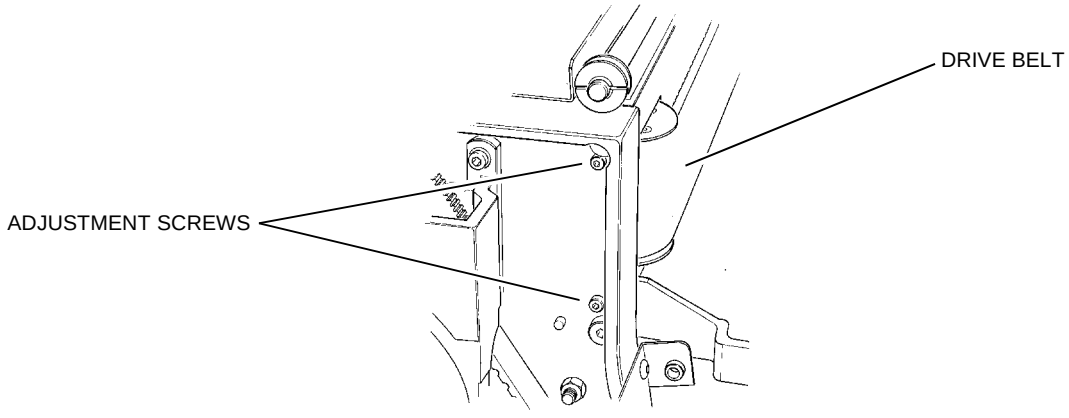
   b. Slew the cutter head back and forth along the beam several times.

   c. If the drive belt rides up on one edge of the pulley, adjust the adjusting screw closest to that edge.

   d. Repeat steps b. and c. until the belt tracks properly.

   e. Turn off the C-200B controller.

8. Install the remote-end cover (page 4-42).



X-Axis Drive Belts

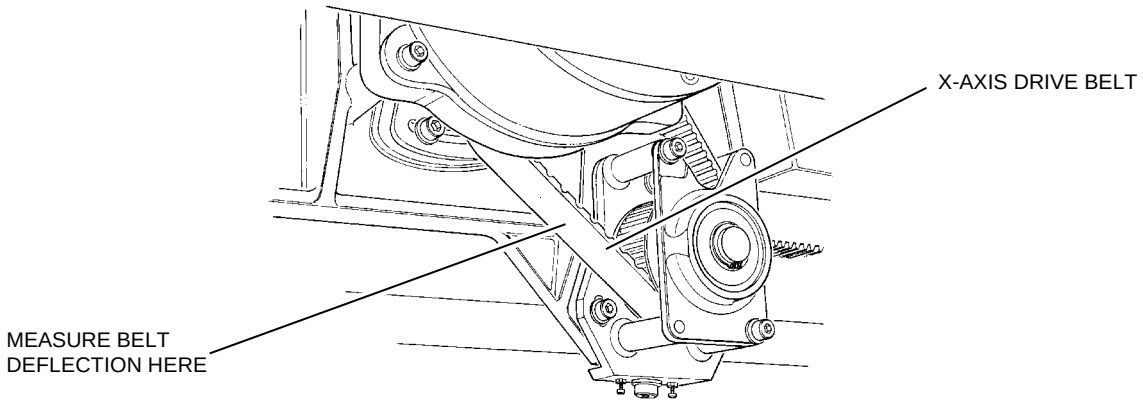
The X-axis drive belts let an electric motor in the beam turn the gears and pulleys that move the beam along the cutting table. The drive belts must be in good condition for the beam to move properly.

Required Tools and Supplies

Item	GGT Part No.
6-in. adjustable wrench	944002510
belt deflection gauge	045412000
metric right-angle hex key set	945500079
split collar	324500026

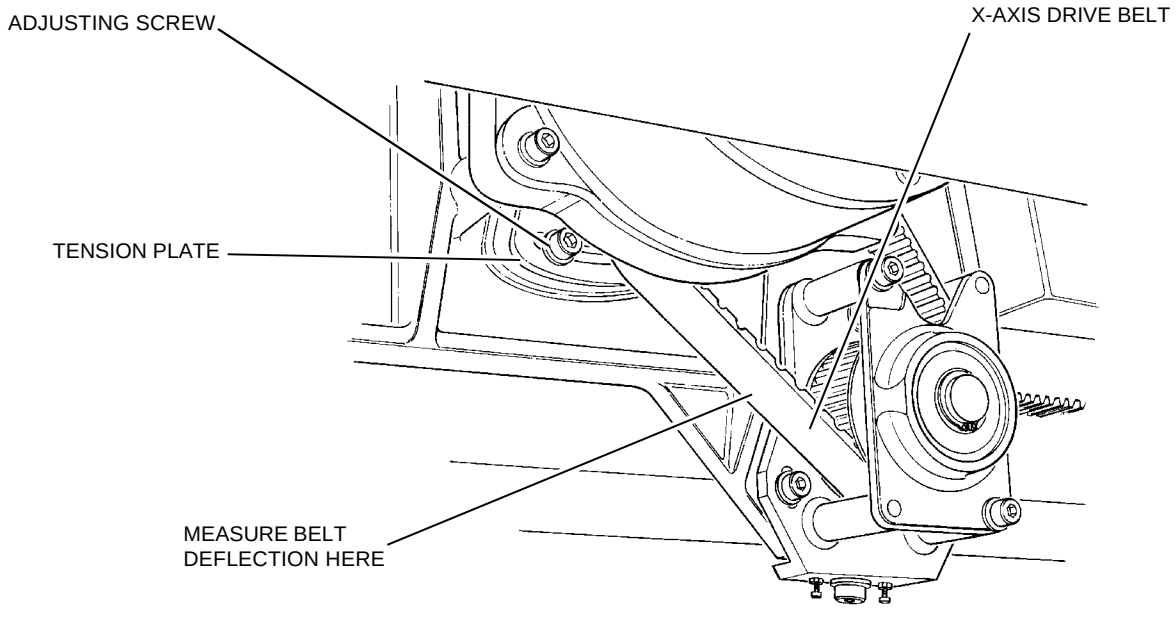
Inspect

1. Turn off the C-200B controller.
2. Remove the BCP cover (page 4-41).
3. Inspect the left-side drive belt.
   a. Look for nicks, cuts, gouges, glazing, or fraying.
   b. Move the beam as needed to bring hidden sections of the belt into view.
   c. Call your service technician if you see any defects in the belt.
   d. Measure the tension of the drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 3.18 to 4.09 kg (7 to 9 lb).
   e. If the deflection is incorrect, adjust the drive belt tension.
4. Install the BCP cover (page 4-41).
5. Remove the remote-end cover (page 4-42).
   a. Look for nicks, cuts, gouges, glazing, or fraying.
   b. Move the beam as needed to bring hidden sections of the belt into view.
   c. Call your service technician if you see any defects in the belt.
   d. Measure the tension of the drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 3.18 to 4.09 kg (7 to 9 lb).
   e. If the deflection is incorrect, adjust the drive belt tension.
6. Install the remote-end cover (page 4-42).
7. Turn on the C-200B controller.



Adjust

1. Turn off the C-200B controller.
2. Remove the BCP cover (page 4-41).
3. Adjust left-side drive belt tension.
   a. Loosen the adjusting screw for the left-side tension plate.
   b. Move the tension plate to adjust belt tension.
   c. While keeping tension on the tension plate, tighten the adjusting screw.
   d. Measure the tension of the drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 3.18 to 4.09 kg (7 to 9 lb).
   e. Repeat steps a. through d. until the belt tension is correct.
4. Install the BCP cover (page 4-41).
5. Remove the remote-end beam cover (page 4-42).
6. Adjust the right-side drive belt tension.
   a. Loosen the adjusting screw for the right-side tension plate.
   b. Move the tension plate to adjust belt tension.
   c. While keeping tension on the tension plate, tighten the adjusting screw.
   d. Measure the tension of the drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 3.18 to 4.09 kg (7 to 9 lb).
   e. Repeat steps a. through d. until the belt tension is correct.
7. Install the remote-end beam cover (page 4-42).
8. Turn on the C-200B controller.



Y-Axis Drive Belt

The Y-axis drive belt lets an electric motor in the beam turn the pulleys that move the cutter head along the beam. The drive belt must be in good condition for the cutter head to move properly.

Required Tools and Supplies

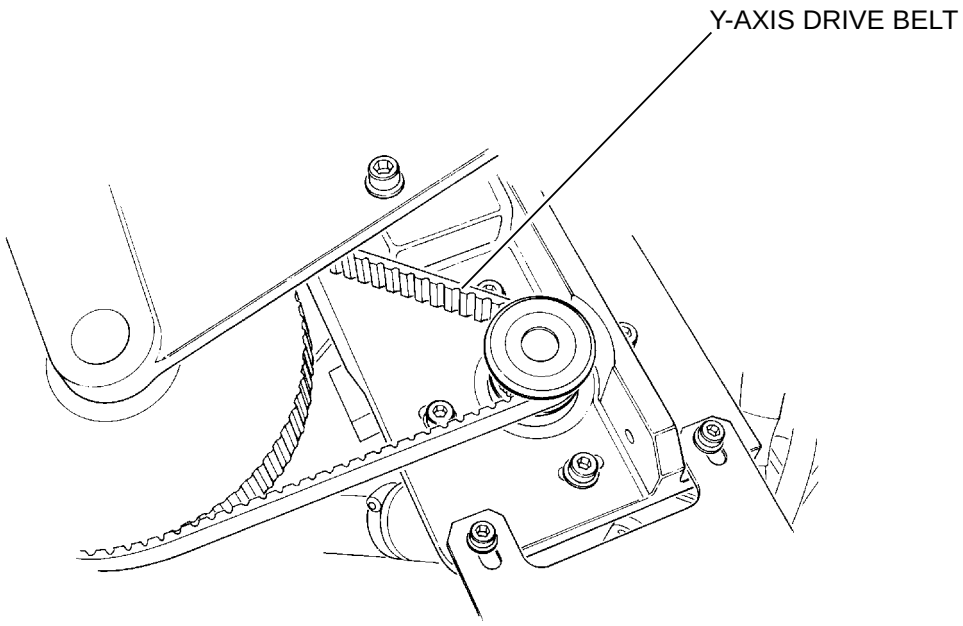
Item	GGT Part No.
belt deflection gauge	045412000
metric right-angle hex key set	945500079

Inspect

1. Turn off the C-200B controller.
2. Remove the BCP cover (page 4-41).
3. Remove the BCP mounting screws.

NOTE: Do not disconnect any electrical connections from the BCP.

4. Move the BCP out of the way.
5. Remove the metal belt guard from over the drive belt.
6. Inspect the drive belt for nicks, cuts, gouges, glazing, and fraying. Call your service technician if you see any of these defects.



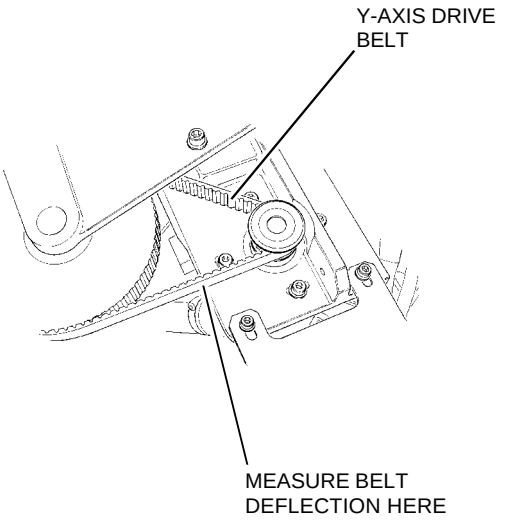
7. Check drive belt tension.

    a. Set the belt deflection gauge to measure a deflection of 3.8 mm (0.15 in.) at 2.73 to 3.64 kg (6 to 8 lb).

    b. Measure the drive belt deflection halfway between the Y-axis motor pulley and the cutter head drive belt pulley.

    c. If the belt deflection is not correct, adjust the drive belt tension.

    d. Install the metal belt guard over the drive belt.



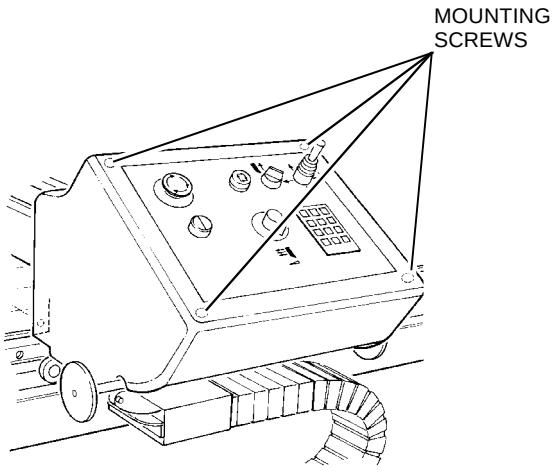
8. Install the BCP.

    a. Align the screw holes in the BCP with the screw holes in the BCP mounting bracket.

    b. Install the BCP mounting screws.

9. Install the BCP cover (page 4-41).

10. Turn on the C-200B controller.



Adjust

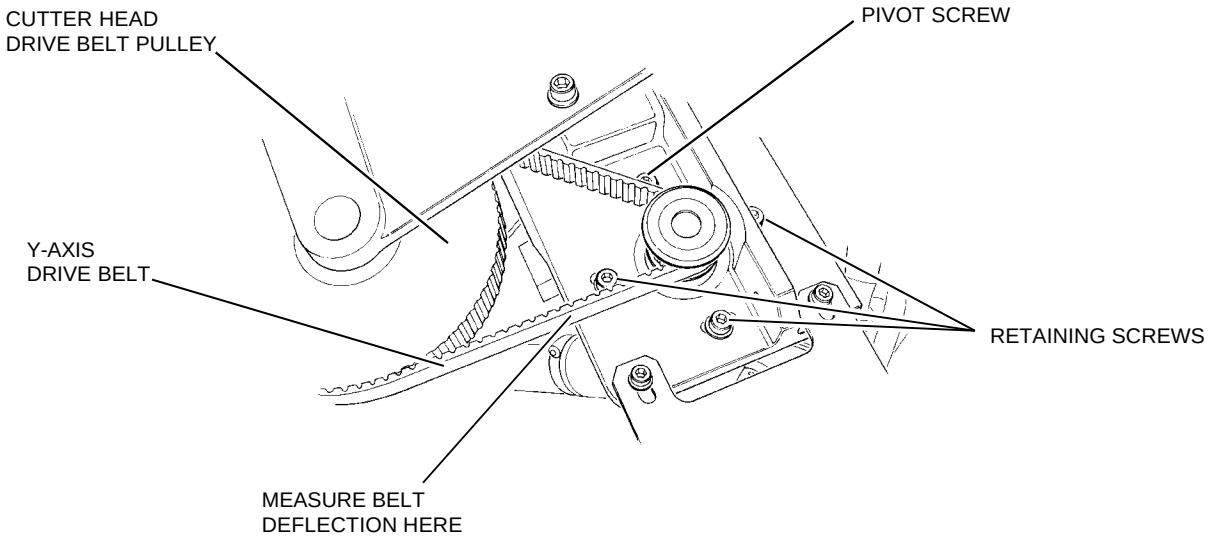
1. Turn off the C-200B controller.
2. Remove the BCP cover (page 4-41).
3. Remove the BCP mounting screws.

NOTE: Do not disconnect any electrical connections from the BCP.

4. Move the BCP out of the way.
5. Adjust drive belt tension.
   a. Loosen the three Y-axis motor retaining screws.
   b. Loosen the Y-axis motor pivot screw.
   c. To increase Y-axis drive belt tension, move the Y-axis motor away from the cutter head drive belt pulley.

   OR

   d. To decrease Y-axis drive belt tension, move the Y-axis motor towards the cutter head drive belt pulley.
   e. Tighten the three Y-axis motor retaining screws.
   f. Tighten the Y-axis motor pivot screw.
   g. Set the belt deflection gauge to measure a deflection of 3.8 mm (0.15 in.) at 2.73 to 3.64 kg (6 to 8 lb).
   h. Measure the drive belt deflection halfway between the Y-axis motor pulley and the cutter head drive belt pulley.
   i. If the belt deflection is not correct, repeat steps 5a. through 5h. until the tension is correct
6. Install the BCP.
   a. Align the screw holes in the BCP with the screw holes in the BCP mounting bracket.
   b. Install the BCP mounting screws.
7. Install the BCP cover (page 4-41).
8. Turn on the C-200B controller.



X-Axis Gears

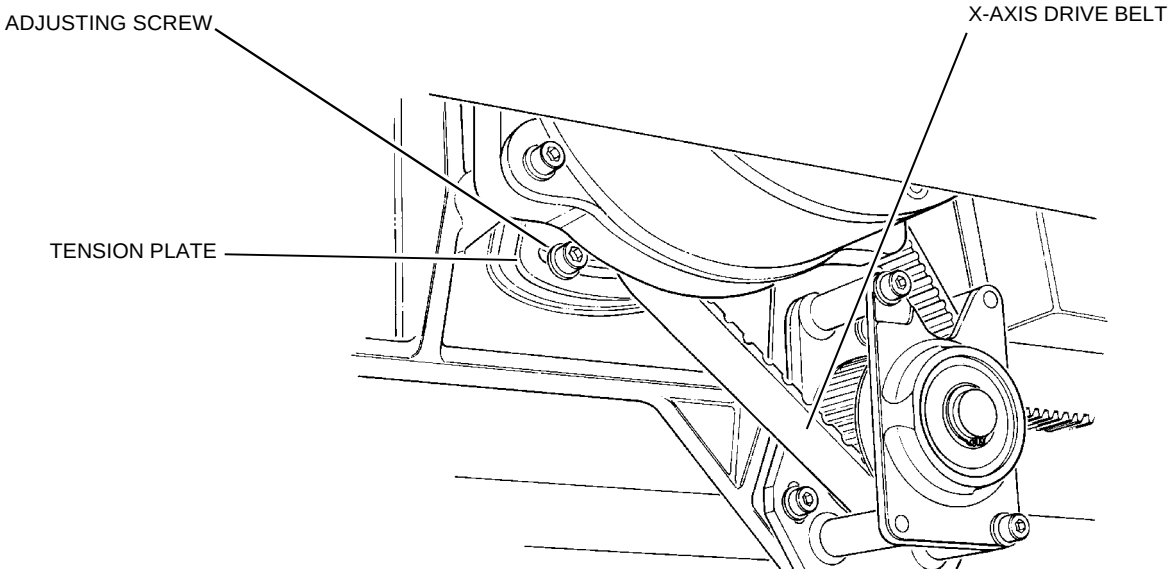
The X-axis gears need to be adjusted so that the beam moves quietly and smoothly without binding. X-axis gears include the four stabilizer gears, the two pinion gears, and the X-axis motor gear.

At each end of the beam, the gear that is closest to the take-on end and meshes with the rack is a stabilizer gear. Also, the gear that is closest to the take-off end and meshes with the rack is a stabilizer gear. The center gear that meshes with the rack is a pinion gear. The X-axis motor gear is on the right side of your GERBERcutter, behind the X-axis servo motor.

Required Tools and Supplies	
Item	**GGT Part No.**
metric combination wrench set	945500093
metric right-angle hex key set	945500079
screwdriver set	944211601
steel shims (4) 25.4x25.4x0.127-0.254 mm (1x1x0.005-0.010 in.)	N/A

Adjust

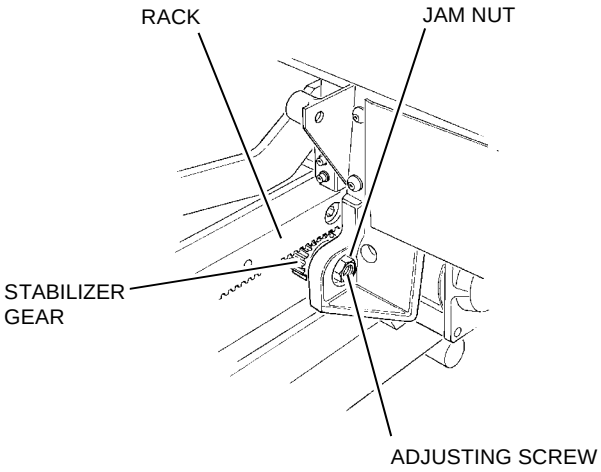
1. Turn off the C-200B controller.
2. Remove the BCP cover (page 4-41).
3. Remove the remote-end cover (page 4-42).
4. Loosen the left-side X-axis drive belt tension.
   a. Loosen the adjusting screw for the left-side tension plate.
   b. Move the tension plate to loosen the left-side X-axis drive belt.
   c. Tighten the adjusting screw.
5. Loosen the right-side X-axis drive belt tension.
   a. Loosen the adjusting screw for the right-side tension plate.
   b. Move the tension plate to loosen the right-side X-axis drive belt.
   c. Tighten the adjusting screw.



6. Loosen both left-side stabilizer gears:

    a. Use an open-end wrench to loosen the jam nut on each stabilizer gear.

    b. Use a screw driver to turn the adjusting screw clockwise and increase gear backlash on each stabilizer gear.



7. Repeat steps 6a. and 6b. to loosen the right-side stabilizer gears.

8. Loosen the right-side pinion gear:

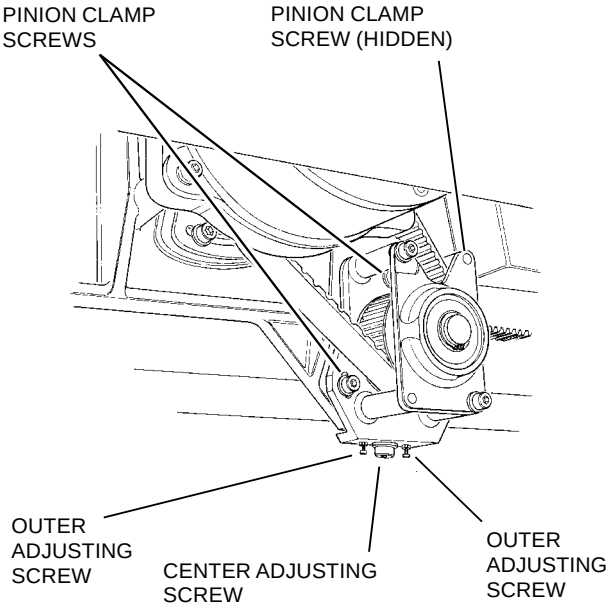
    a. Loosen the three pinion clamp screws.

    b. Loosen the locknuts on the outer adjusting screws.

    c. Turn the outer adjusting screws three full turns counterclockwise.

    d. Turn the center adjusting screw three full turns counterclockwise.

9. Repeat steps 8a. through 8d. for the left-side pinion gear.



10. Loosen the X-axis servo-motor gear.

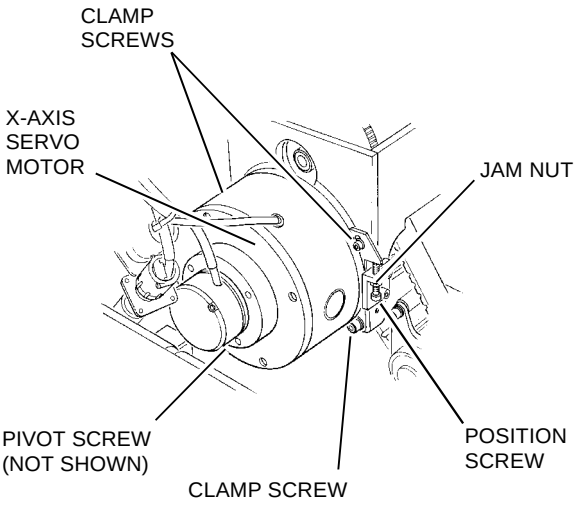
    a. Loosen the X-axis servo-motor clamp screws by turning them counterclockwise.

    b. Loosen the X-axis servo-motor pivot screw.

    c. Loosen the jam nut on the X-axis servo motor position screw.

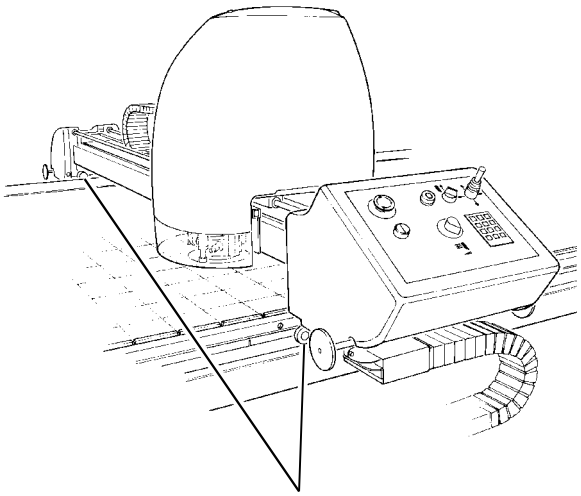
    d. Turn the position screw six full turnscounterclockwise.

    e. Move the X-axis servo motor down.



NOTE: There are four beam rollers. Two are on the BCP-end of the beam and two are on the remote-end of the beam. Two are on the take-on side of the beam and two are on the take-off side of the beam.

11. Put one steel shim (0.127 to 0.254 mm or 0.005 to 0.010 in. thick) on the top surface of the rack next to each beam roller. Make sure all shims are either on the take-on side of all beam rollers or all shims are on the take-off side of all beam rollers.

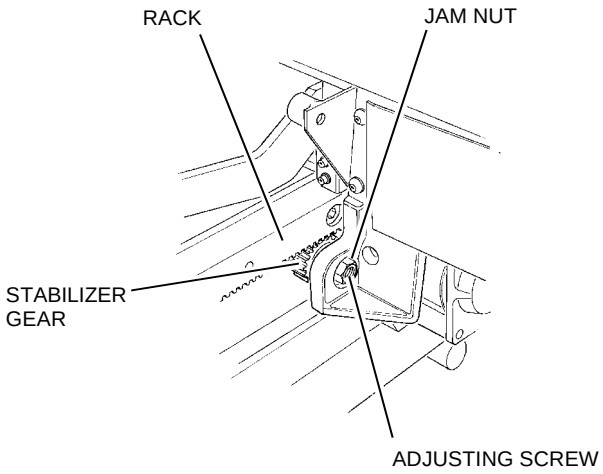


12. Push the beam so that each beam roller is on top of a shim.

13. Adjust both right-side stabilizer gears.

    a. Use a screwdriver to turn both adjusting screws clockwise until each stabilizer gear is snug with the rack.

    b. Use an open-end wrench to tighten both jam nuts.



14. Repeat steps 13a. through 13b. to adjust the left-side stabilizer gears.

15. Adjust the left-side pinion gear.

CAUTION: **Do not over-tighten the center adjusting screw for the pinion gear. You may damage the pinion gear if you use excessive force to tighten the adjusting screw after there is zero backlash between the gear and the rack.**

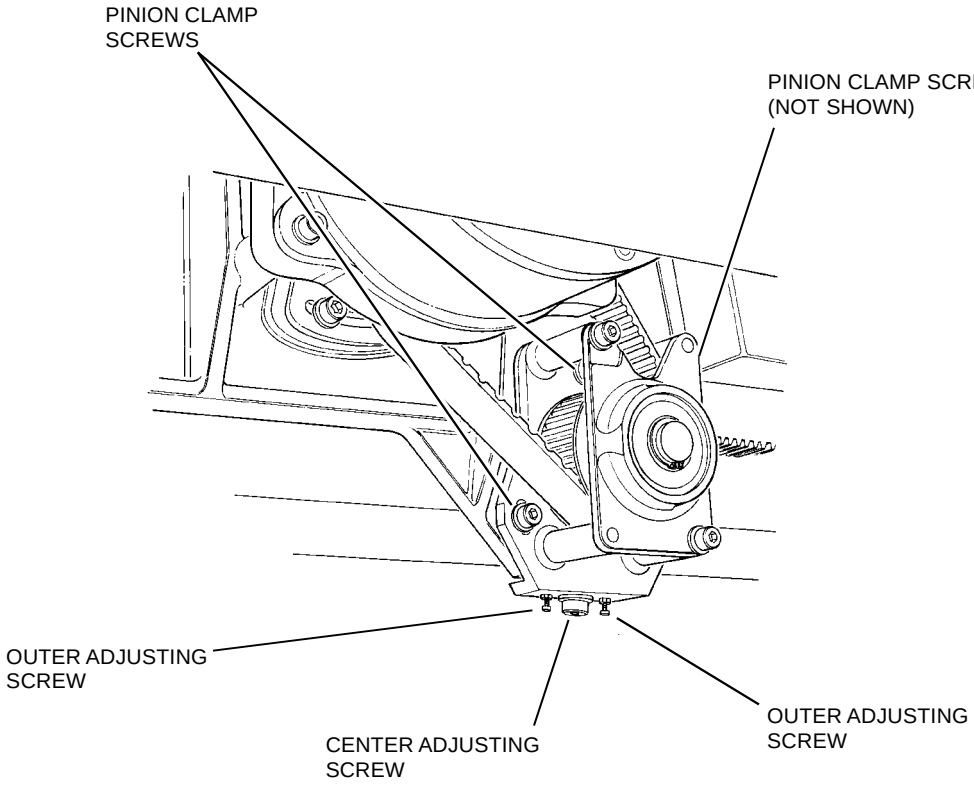
a. Turn the center adjusting screw clockwise until the pinion gear meshes with the rack and there is no backlash.

b. Turn the outer adjusting screws counterclockwise until they stop.

c. Tighten the locknuts on the outer adjusting screws.

d. Tighten the three pinion clamp screws.

16. Repeat steps 15a. through 15d. for the right-side pinion gear.



17. Move the beam and rollers off the shims.

18. Remove the shims. There should be 0.076 to 0.102 mm (0.003 to 0.004 in.) of backlash between each pinion gear and the rack and between each stabilizer gear and the rack.

19. Adjust the X-axis drive belts (page 4-31).

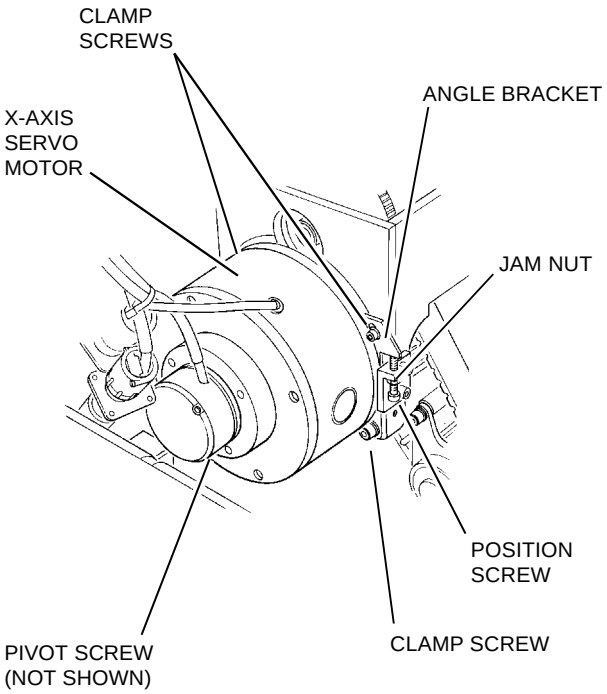
20. Adjust the X-axis servo-motor gear.

    a. Hook a spring scale onto the angle bracket.

    b. Pull up on the spring scale until the scale measures 4.55 kg (10 lb).

CAUTION: **You must hold the servo-motor with the spring scale while you tighten the clamp screws. Otherwise, the servo-motor may move out of position.**

    c. Tighten the pivot screw and the clamp screws while holding the servo-motor with the spring scale.



    d. Remove the spring scale.

CAUTION: **Do not over-tighten the servo-motor position screw. If you do you may damage the servo-motor gear and servo motor.**

    e. Turn the X-axis servo-motor position screw until it barely touches the angle bracket.

    f. Loosen the position screw ⅛ to ¼ turn counterclockwise.

    g. Tighten the position screw jam nut.

    h. Loosen the pivot and clamp screws. This lets the angle bracket for the X-axis servo motor rest on the position screw.

    i. Tighten the pivot and clamp screws by turning them clockwise.

    j. Manually move the beam along the entire rack (to both the take-off and take-on ends of the cutting table). The beam should move smoothly, without binding.

21. If the beam does not move smoothly:

    a. Repeat step 10a. through 10d. to loosen the servo motor.

    b. Repeat steps 20a. through 20j. to adjust and check the X-axis servo-motor gear.

OR

22. If the beam does move smoothly:

    a. Install the BCP cover (page 4-41).

    b. Install the remote-end cover (page 4-42).

    c. Turn on the C-200B controller.

Cables

The cables provide power and cutting commands for the cutter head and beam. They are protected with plastic link armor.

Required Tools and Supplies

Item	GGT Part No.
none	

Inspect

1. Move the beam to the take-off end of the cutting table.

2. Remove left side panels as needed to see the entire X-axis cable (page 4-131).

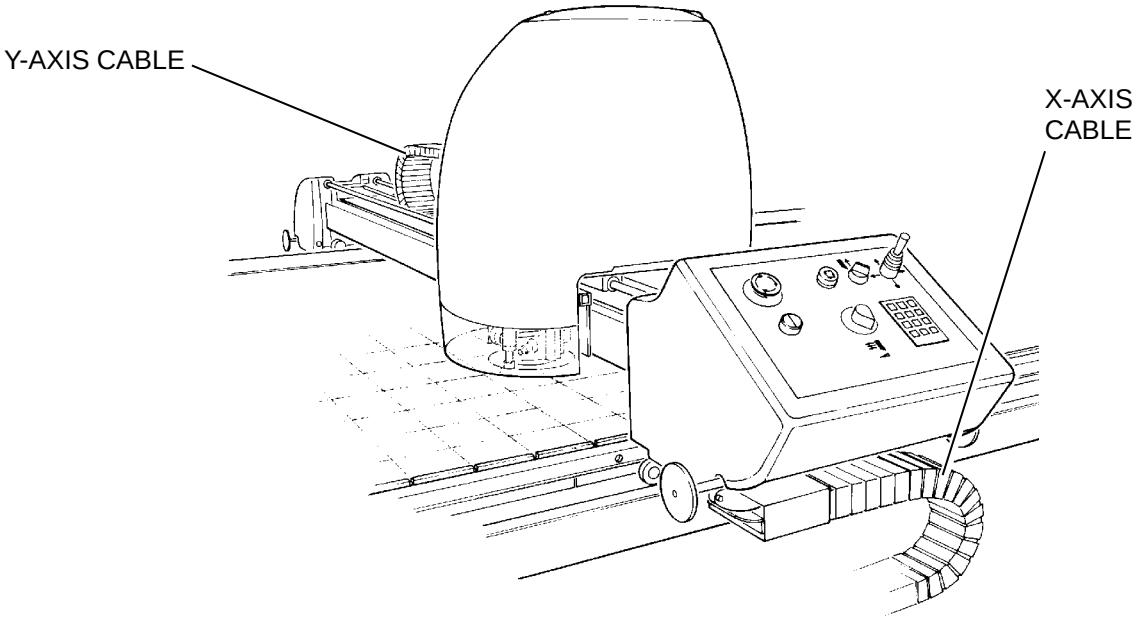
3. Move the beam to the take-on end of the cutting table.

4. Turn off the C-200B controller.

5. Inspect the X and Y-axis cables for fraying or breaks and the armor for broken links. Call a service technician if you see any defects.

6. Install any side panels that you removed (page 4-131).

7. Turn on the C-200B controller.



BCP Cover

The beam control panel (BCP) cover encloses the moving parts and electronics inside the BCP.

Required Tools and Supplies

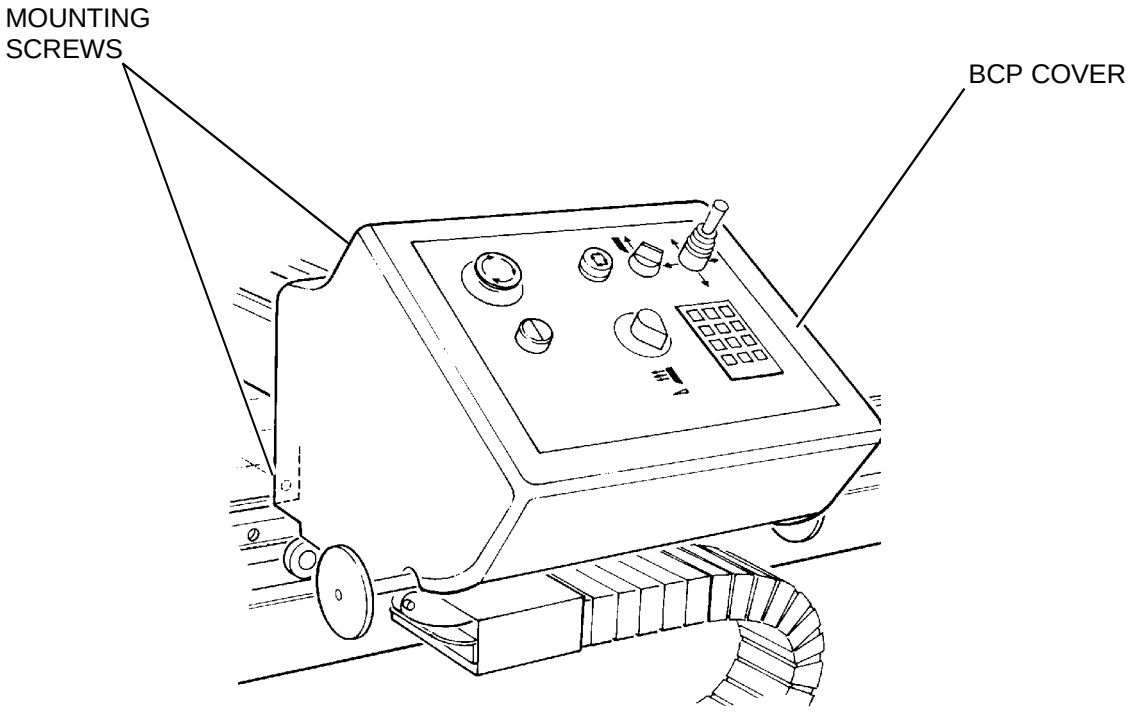
Item	GGT Part No.
metric right-angle hex key set	945500079

Remove

1. Turn off the C-200B controller.
2. Remove the screws that retain the BCP cover.
3. Pull the BCP cover up and sideways away from the GERBERcutter .

Install

1. Slide the BCP cover down and sideways over the beam control panel. Be careful not to pinch any wires or tubing.
2. Install the screws that retain the BCP cover.
3. Turn on the C-200B controller.



Remote-End Cover

This cover encloses the moving parts and electrical components on the remote-end of the beam.

Required Tools and Supplies

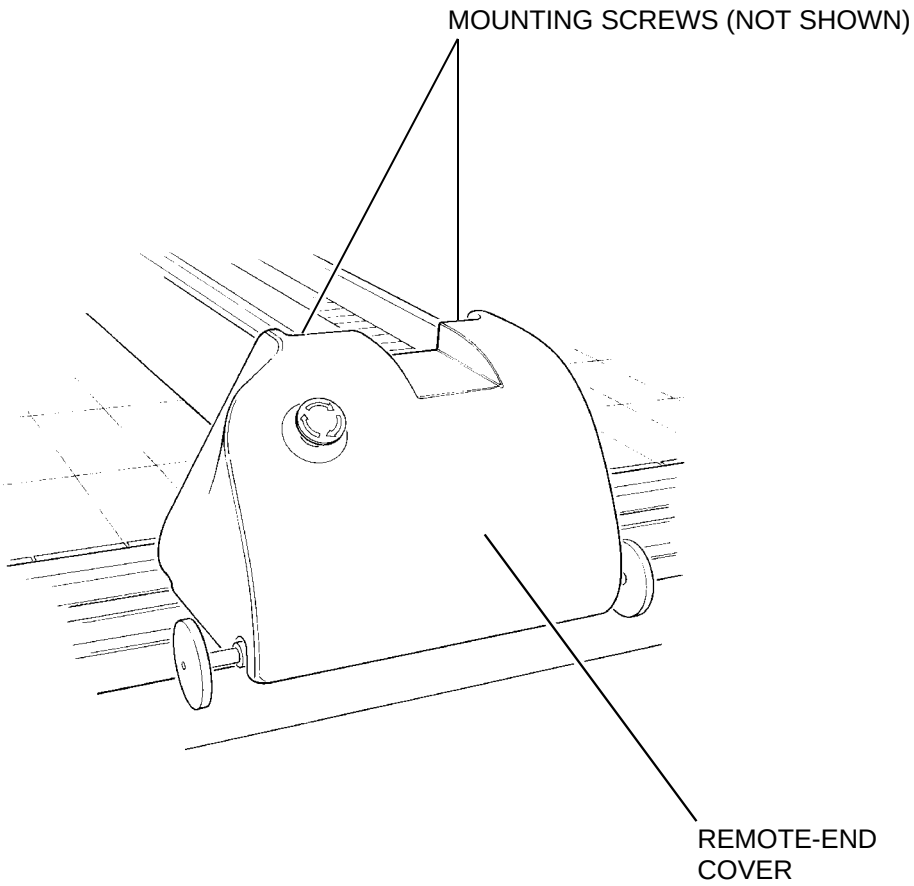
Item	GGT Part No.
metric right-angle hex key set	945500079

Remove

1. Turn off the C-200B controller.
2. Remove the remote-end cover mounting screws.
3. Remove the remote-end cover by lifting it straight up.

Install

1. Slide the remote-end cover straight down over the beam control panel. Be careful not to pinch any wires.
2. Install the remote-end cover mounting screws.
3. Turn on the C-200B controller.



Operator Workstation

The operator workstation (Figure 4-2) runs the entire GERBERcutter. Because the operator workstation is complex and contains dangerous voltages, the only operator-serviceable parts are the monitor and keyboard.

Monitor

The monitor is a television-like device that lets you communicate with the GERBERcutter. It displays the commands you enter and the messages the operator workstation sends.

Required Tools and Supplies

Item	GGT Part No.
anti-static glass cleaner	N/A
clean, soft cloth	N/A

Inspect

1. Inspect the screen for dust and smudges. Clean the screen, if needed.

Clean

1. Clean the screen with an anti-static glass cleaner and a clean, soft cloth.

Keyboard

The keyboard is a device with keys, like those on a typewriter, that lets you enter data and communicate with the operator workstation. You may not be able to use some or all of the GERBERcutter features if the keyboard fails.

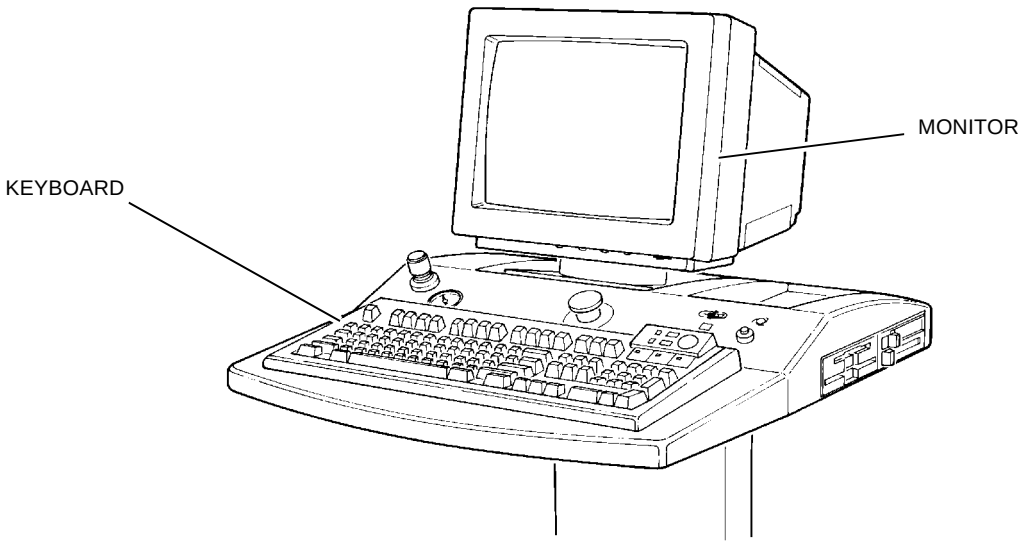
Required Tools and Supplies

Item	GGT Part No.
none	

Inspect

1. Inspect the keyboard for sticking keys or torn cover.

2. Call your service technician to fix any problems.



S-5200 Cutter Head

This section describes maintenance only of the S-5200 cutter head (see page 4-84 for information about the S-7200 cutter head). The cutter head (Figure 4-3) contains the knife and does the actual cutting of material. It moves across the cutting table on the beam.

S-5200 Front Cover

The cutter head front cover encloses the cutter head. It protects the cutter head from damage and the operator from injury. The cutter head front cover is hinged so that you can lift the front of the cover out of the way to do maintenance. For some procedures, though, you may want to remove the entire cover.

Required Tools and Supplies

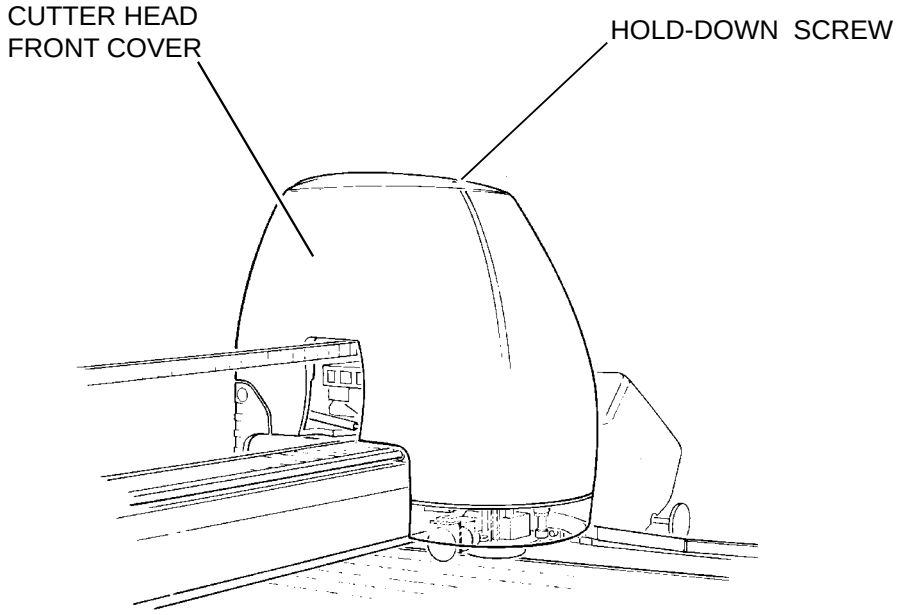
Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Open

1. Turn off the C-200B controller.
2. Remove the hold-down screw from the top of the cutter head front cover.
3. Lift the cutter head front cover.

Close

1. Lower the cutter head front cover.
2. Install the cutter head cover hold-down screw.
3. Turn on the C-200B controller.

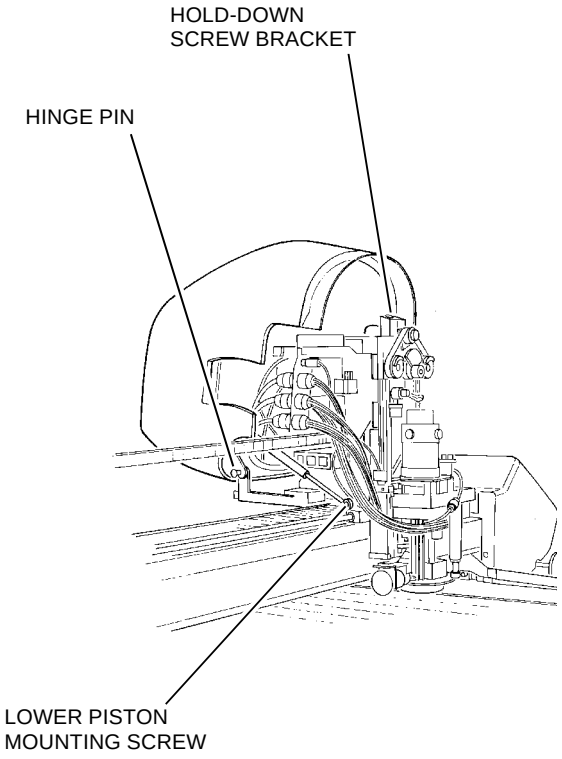


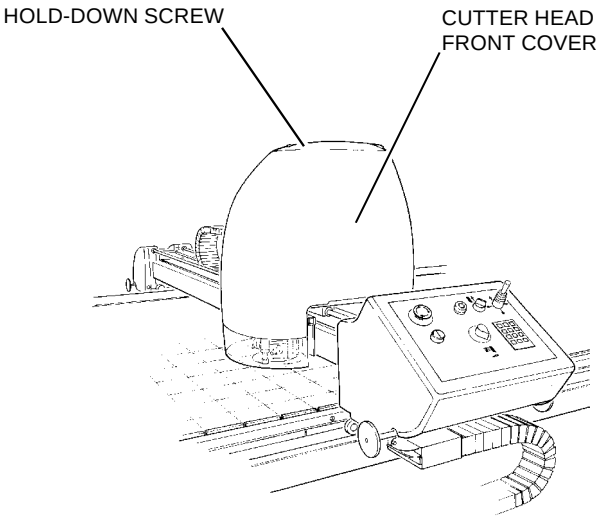
Remove

1. Turn off the C-200B controller.
2. Remove the hold-down screw from the top of the cutter head cover.
3. Open the cutter head cover (page 4-44).
4. Remove the lower piston mounting screw.
5. Remove the two hinge pins.
   a. Push in the release button in the center of the hinge-pin head.
   b. While holding in the release button, pull the hinge pin from the cutter head cover.
   c. Repeat steps a. and b. for the second hinge pin.
6. Lift the head cover from the cutter head.

Install

1. Lower the cutter head cover onto the cutter head.
2. Install the two hinge pins.
   a. Push in the release button in the center of the hinge-pin head.
   b. While holding in the release button, push the hinge pin into the hinge-pin holes in the cutter head cover and its mounting bracket.
   c. Repeat steps a. and b. for the second hinge pin.
3. Install the lower piston mounting screw.
4. Close the cutter head cover (page 4-44).
5. Install the hold-down screw into the top of the cutter head cover.
6. Turn on the C-200B controller.





S-5200 Back Cover

The cutter head back cover encloses the part of the cutter head that contains the drill. It protects the drill from damage and the operator from injury. You may need to remove this cover to do maintenance on the cutter head and drill.

Required Tools and Supplies

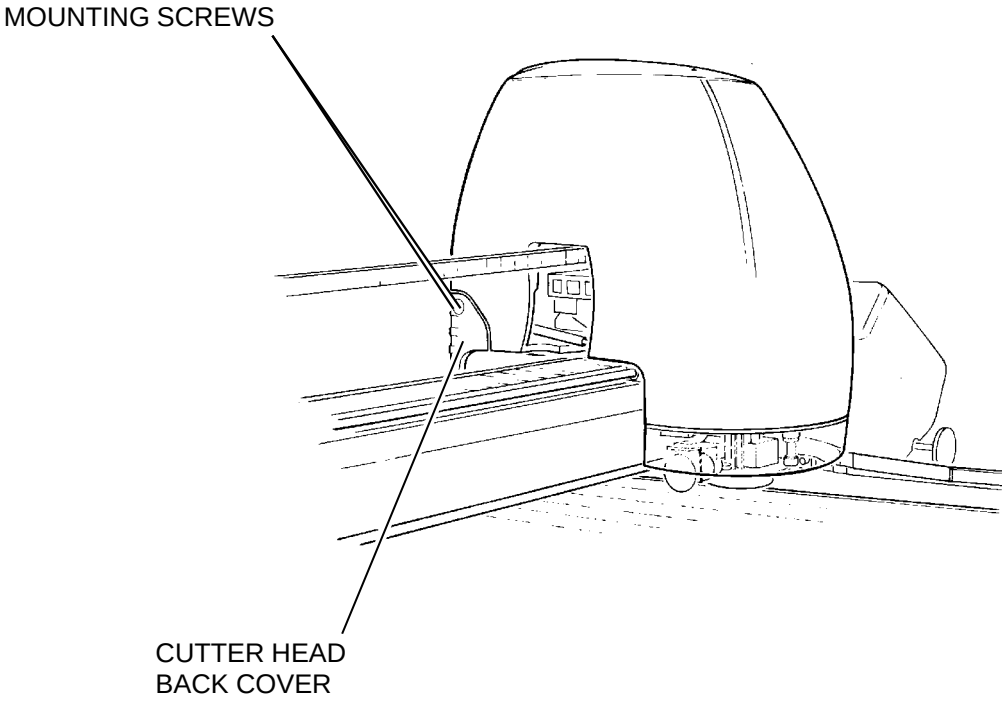
Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Remove

1. Turn off the C-200B controller.
2. Remove the mounting screws from the cutter head back cover.
3. Remove the cutter head back cover.

Install

1. Align the screw holes in the cutter head back cover with those in the mounting bracket.
2. Install the cutter head back cover mounting screws.
3. Turn on the C-200B controller.



S-5200 C-Axis Assembly

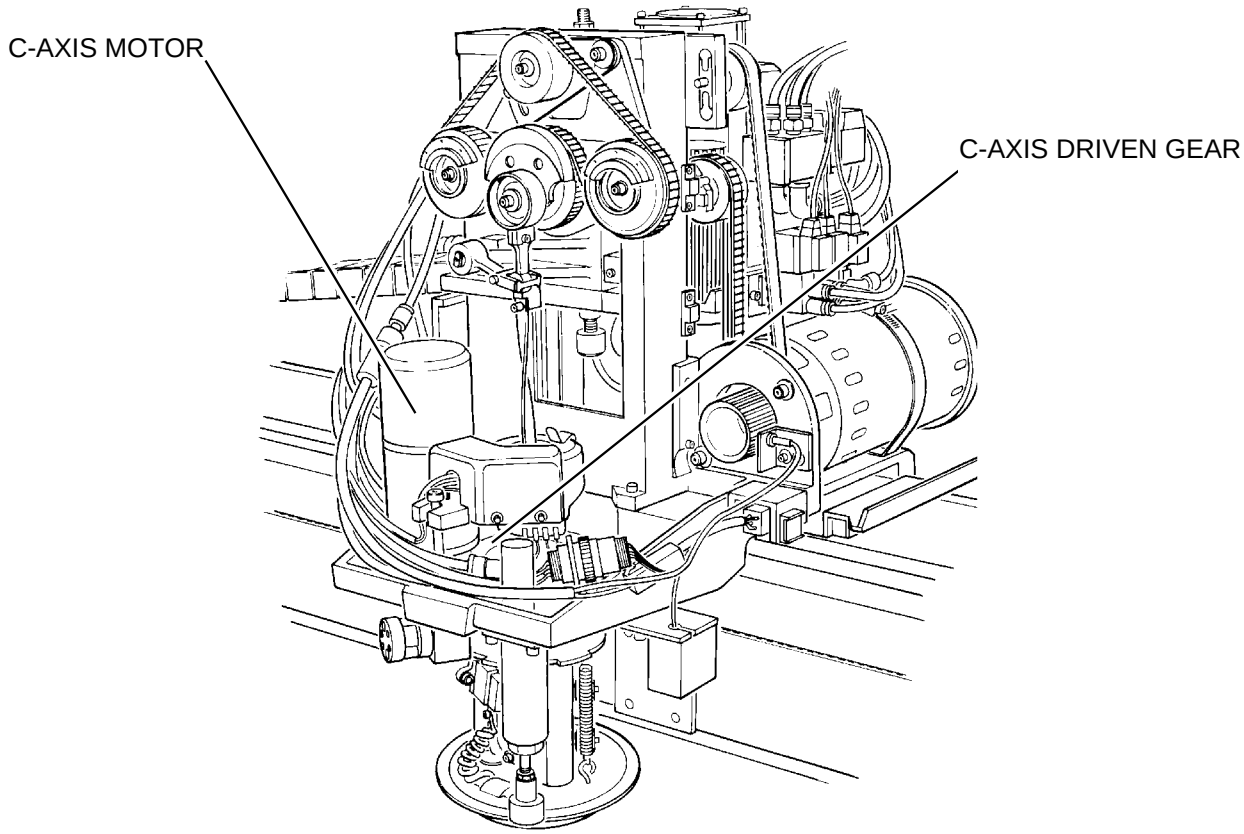
The C-axis assembly (Figure 4-6) includes the C-axis motor, motor gear, and C-axis driven gear. The C-axis assembly turns the knife blade to cut corners, notches, curves, and other complex shapes.

Required Tools and Supplies

Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Manually turn the C-axis assembly several times to the right and left. It should turn freely without binding or noise.
4. If you find any defects, call your service technician.
5. Close the cutter head front cover (page 4-44).
6. Turn on the C-200B controller.



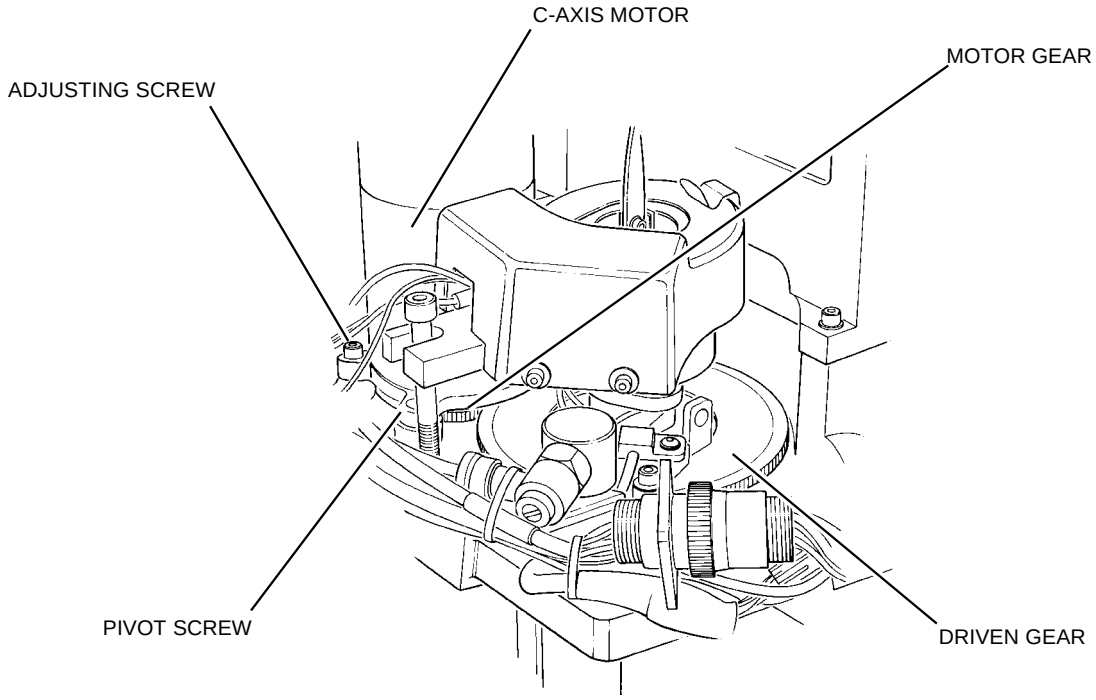
S-5200 C-Axis Driven Gear. The C-axis driven gear is driven by the C-axis motor gear. The C-axis driven gear turns the knife blade about the C-axis. This gear must be in good condition and synchronized with the C-axis motor gear for accurate cutting.

Required Tools and Supplies

Item	GGT Part No.
metric right-angle hex key set	945500079
spring scale, 0 - 23 kg (0 - 50 lb)	945500252
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Inspect the driven gear for damage and wear. Call your service technician if you find any of these defects.
4. Check the driven gear for backlash. There should be a small amount of backlash. If there is insufficient backlash, too much backlash, or if the amount of backlash is different than usual, adjust the backlash.
5. Close the cutter head cover (page 4-44).
6. Turn on the C-200B controller.

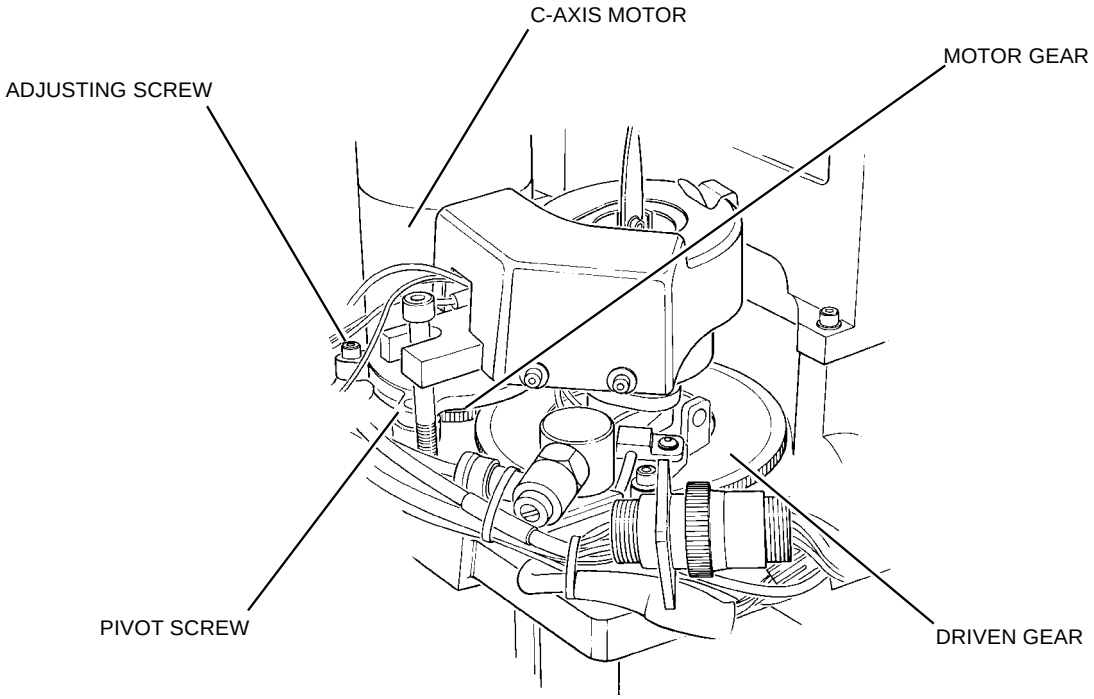


Adjust

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Loosen the two adjusting screws for the C-axis motor.
4. Loosen the pivot screw for the C-axis motor.
5. Slide the C-axis motor toward the driven gear to decrease backlash.

   OR

6. Slide the C-axis motor away from the driven gear to increase backlash.
7. Tighten the two C-axis motor adjusting screws.
8. Tighten the C-axis motor pivot screw.
9. Check the backlash of the driven gear.
10. If the driven gear backlash is not correct, repeat steps 3. through 9. until the backlash is correct.
11. Close the cutter head front cover (page 4-44).
12. Turn on the C-200B controller.



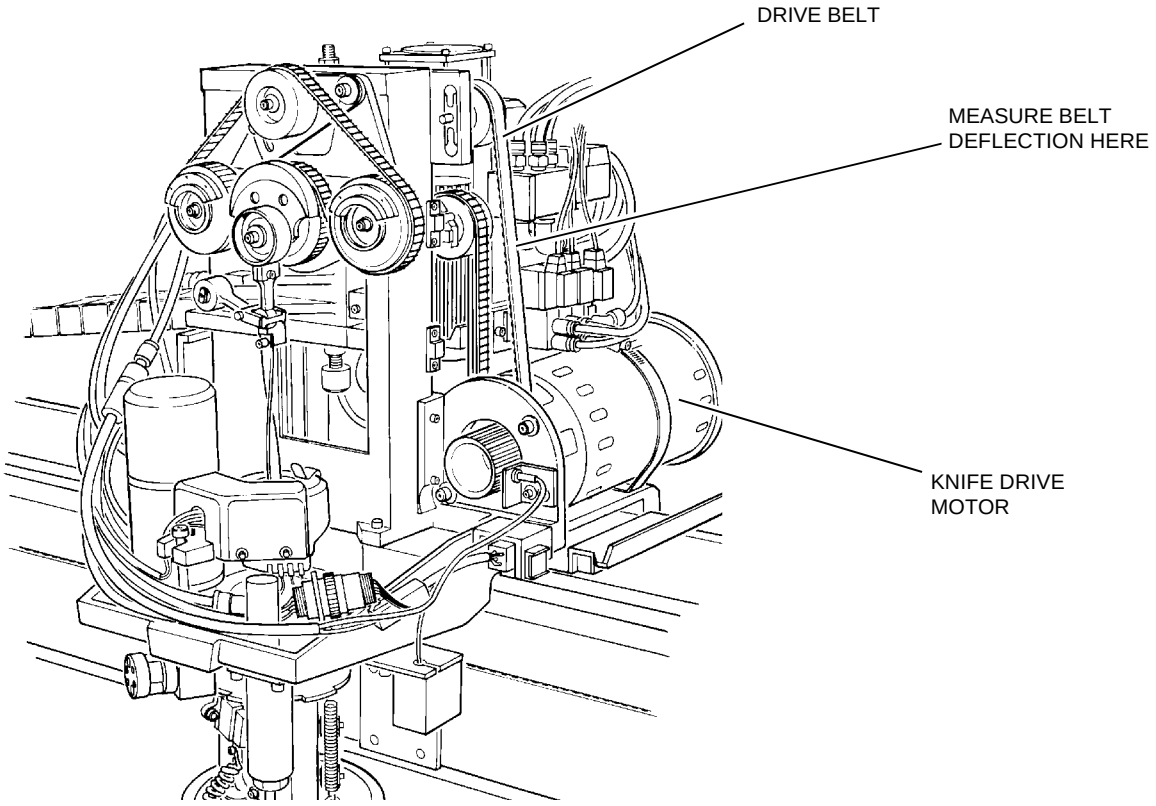
S-5200 Knife Drive Belt. The knife drive belt connects the knife drive motor to the knife crankshaft through a series of pulleys. As the knife drive motor turns, the drive belt transfers its motion to the knife crankshaft. The drive belt must be in good condition and properly tensioned to give the best cutting performance.

Required Tools and Supplies

Item	GGT Part No.
belt deflection gauge	045412000
knife drive belt	180500091
metric right-angle hex key set	945500079
standard T-handle hex key set	945500051

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Check the knife drive belt for cracks, nicks, cuts, and glazing.
4. If you see any of these defects, call your service technician.
5. Measure the tension of the knife drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).
6. If the belt is tensioned incorrectly, adjust the belt tension.
7. Close the cutter head front cover (page 4-44).
8. Turn on the C-200B controller.

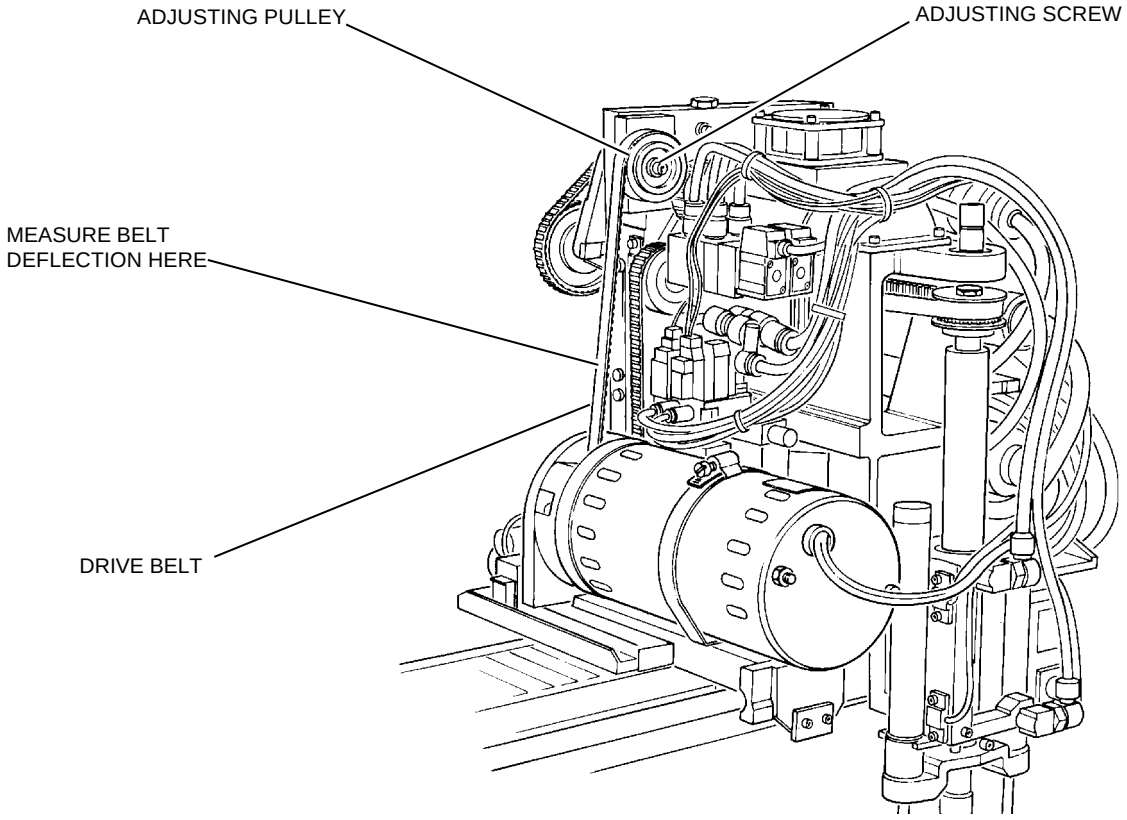


Adjust

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Adjust the drive belt.
   a. Loosen the adjusting screw on the adjusting pulley.
   b. To loosen the drive belt, slide the adjusting pulley towards the knife drive motor.

   OR

   c. To tighten the drive belt, slide the adjusting pulley away from the knife drive motor.
   d. Measure the tension of the drive belt with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).
   e. If the belt tension is incorrect, repeat steps 3a. through 3e. until the belt is tensioned correctly.
   f. Close the cutter head front cover (page 4-44).
4. Turn on the C-200B controller.



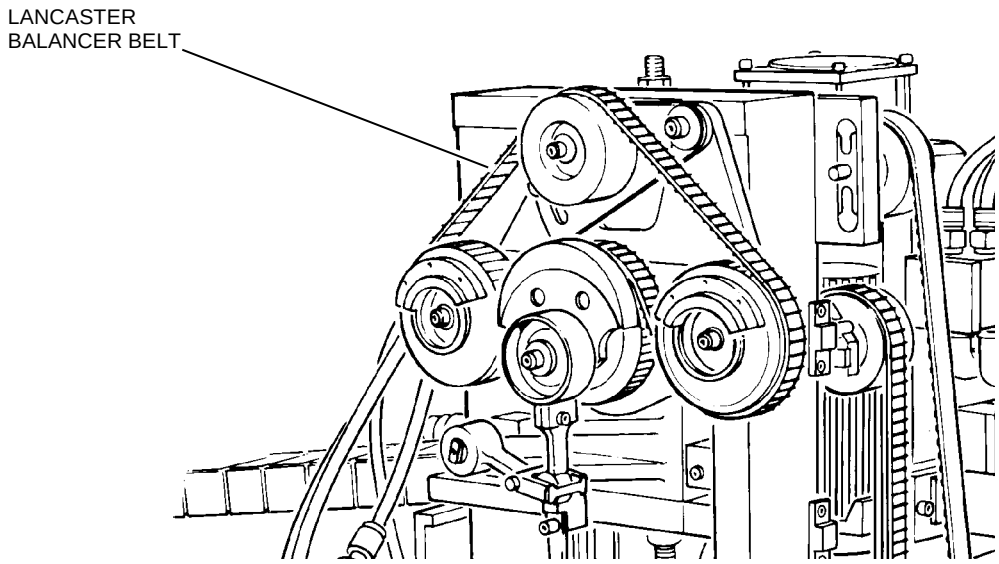
S-5200 Lancaster Balancer. The Lancaster balancer reduces vibration and noise made by the knife drive. As the knife drive motor turns, the Lancaster balancer belt and pulleys also turn. This belt must be in good condition and properly tensioned for the Lancaster balancer to work properly.

Required Tools and Supplies

Item	GGT Part No.
50-lb spring scale	945500252
Lancaster balancer belt	180500090
metric right-angle hex key set	945500079
standard right-angle hex key set	945500051

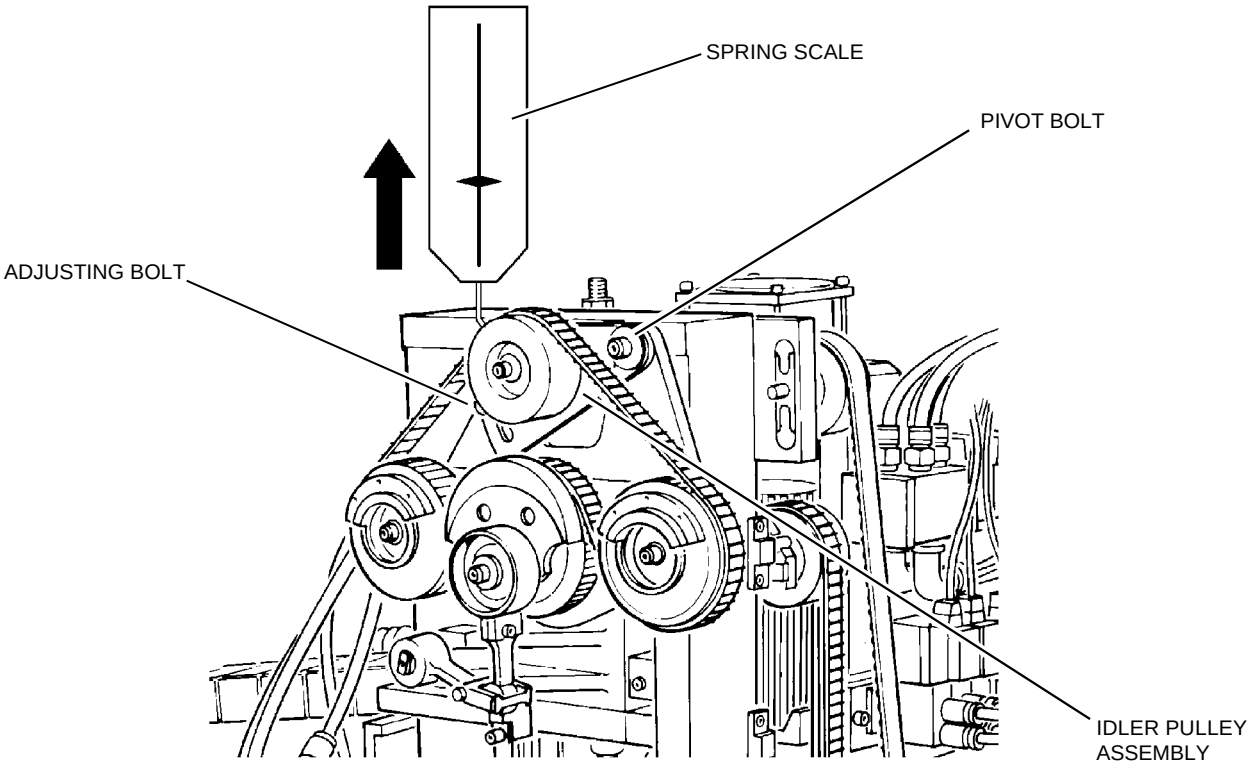
Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Check both sides of the Lancaster balancer belt for cracks, nicks, cuts, and glazing.
4. If you see any of these defects, call your service technician.
5. Visually inspect the belt for proper tension.
6. If the belt is tensioned incorrectly, adjust the belt tension.
7. Close the cutter head front cover (page 4-44).
8. Turn on the C-200B controller.



Adjust

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Loosen the adjusting bolt and the pivot bolt on the idler pulley assembly.
4. Push the idler pulley assembly down to release tension on the Lancaster balancer belt.
5. Hook the end of the spring scale to the adjustable end of the idler pulley assembly.
6. Pull up on the spring scale until it reads 2.27 kg (5 lbs.).
7. Tighten the adjusting bolt and pivot bolt.
8. Close the cutter head front cover (page 4-44).
9. Turn on the C-200B controller.



S-5200 Knife Blade. The knife blade cuts material. It must be sharp and within wear limits to cut properly.

WARNING! The knife blade is very sharp. Handle the knife blade carefully. Never hold the knife blade by its sharp end.

Required Tools and Supplies

Item	GGT Part No.
knife blade (0.93 x 5⁄16 in.)	054782003
metric T-handle hex key set	945500089
Petro-Lon	596500005
standard T-handle hex key set	945500051
screwdriver set	944211601

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Check the knife blade for excessive wear.
4. If the leading edge of the knife blade is damaged or is not straight, replace the knife blade (page 4-56).

OK

UNACCEPTABLE

5. Check the knife blade for proper sharpening.

   a. Use a black felt-tip marker to color both sides of the knife blade black.

   b. Close the cutter head front cover (page 4-44).

   c. Turn on the C-200B controller.

   d. On the BCP, turn on the knife.

   e. Run the C-200B program.

   f. At the **SYSTEM:** prompt, press **F8** to sharpen the knife blade. Sharpen each side of the knife blade five or six times.

   g. On the BCP, turn off the knife.

   h. Exit the C-200B program.

   i. Turn off the C-200B controller.

   j. Open the cutter head front cover (page 4-44).

   k. Inspect both sides of the knife blade. The pattern of ink on the knife blade shows where the knife blade was sharpened.

NOTE: If the knife blade is sharpened correctly, the grinding wheel removes ink from the leading edge to a width of no less than ⅛ inches.

6. Close the cutter head front cover (page 4-44).

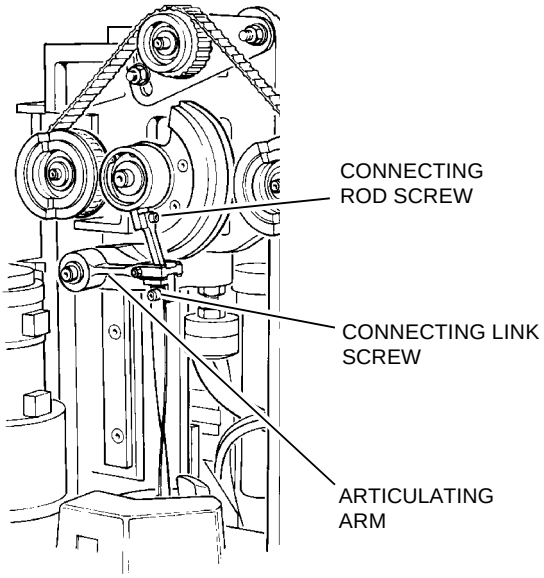
CORRECT SHARPEN ANGLE

Remove

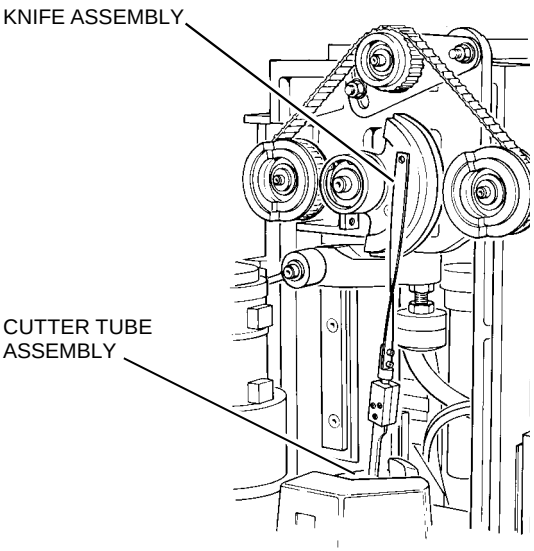
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).

WARNING! The knife blade is very sharp and can cause injury. Handle the knife blade carefully. Never hold the knife blade by its sharp end.

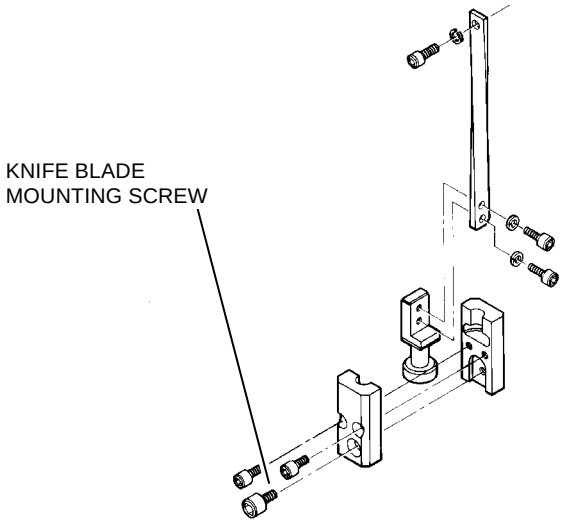
3. Remove the connecting link screw.
4. Remove the connecting rod screw.



5. Push the knife assembly down.
6. Move the articulating arm out of the way.
7. Pull the knife blade assembly up from the cutter tube assembly.



8. Remove the knife blade from the swivel slider assembly.
   a. Remove the knife blade mounting screw.
   b. Pull the knife blade from the swivel slider assembly.

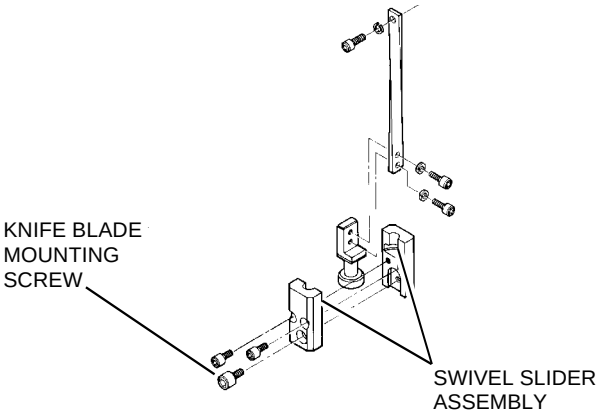


Install

1. Fill the inside of the swivel slider assembly with Petro-Lon. Put enough Petro-Lon into the assembly so that, when you install the knife blade mounting screw, a small amount of Petro-Lon is squeezed out of the assembly.

NOTE: You can also fill the inside of the swivel assembly after you install the knife blade. To do this use a grease gun with a needle fitting to put Petro-Lon through the greasing hole in the swivel. Stop adding Petro-Lon as soon as the Petro-Lon starts to leak out of the assembly.

2. Put the knife blade into the swivel slider assembly.

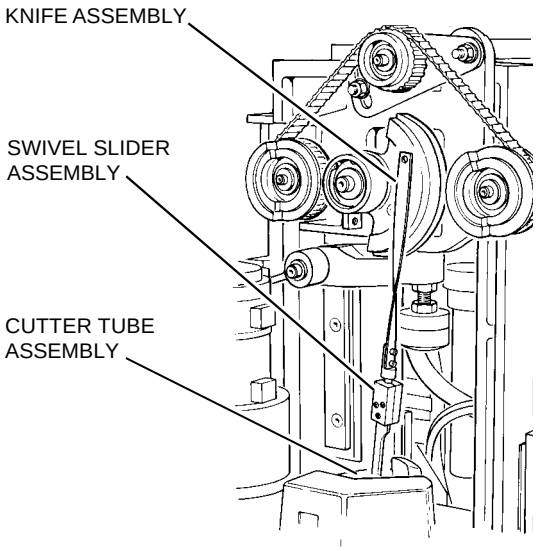


3. Install the knife blade mounting screw.

NOTE: The hole in the knife blade for the mounting screw is offset. You can only mount the knife blade one way.

4. Put a thin (1 mm or 0.040 in.) coat of Petro-Lon onto the outside of the swivel slider assembly.

5. Insert the knife assembly into the cutter tube assembly. Make sure the knife is straight.



6. Align the screw hole in the connecting rod with the screw hole in the block and bushing assembly.

7. Install the connecting rod screw.

8. Align the screw hole in the connecting link with the screw hole in the block and bushing assembly.

9. Install the connecting link screw.

10. Put Petro-Lon into the working surface of the articulating arm. Put in enough Petro-Lon to fill all the space in the arm. Do not overfill the arm so that Petro-Lon is squeezed onto the outside of the articulating arm.

11. Close the cutter head front cover (page 4-44).

12. Turn on the C-200B controller.

13. Check knife operation.

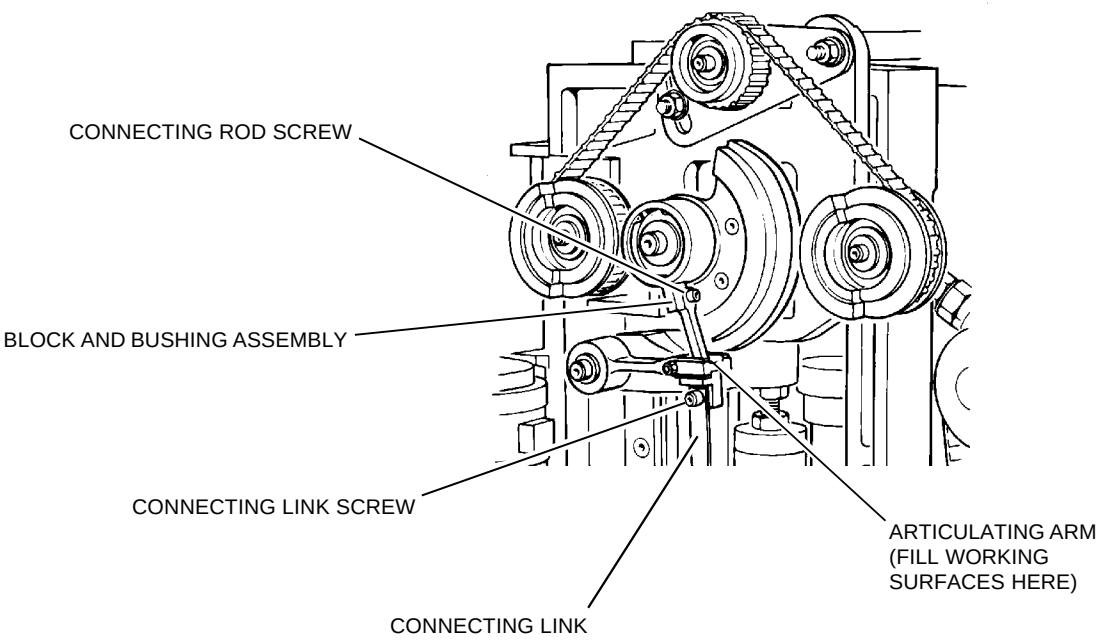
    a. At the BCP, set **KNIFE** to **ON**.

    b. Check that the knife moves smoothly and with no unusual noise.

    c. At the BCP, set **KNIFE** to **OFF**.

14. Use the New Knife command to reset knife wear logic.

15. Sharpen the knife blade several times to check the position of the knife blade.



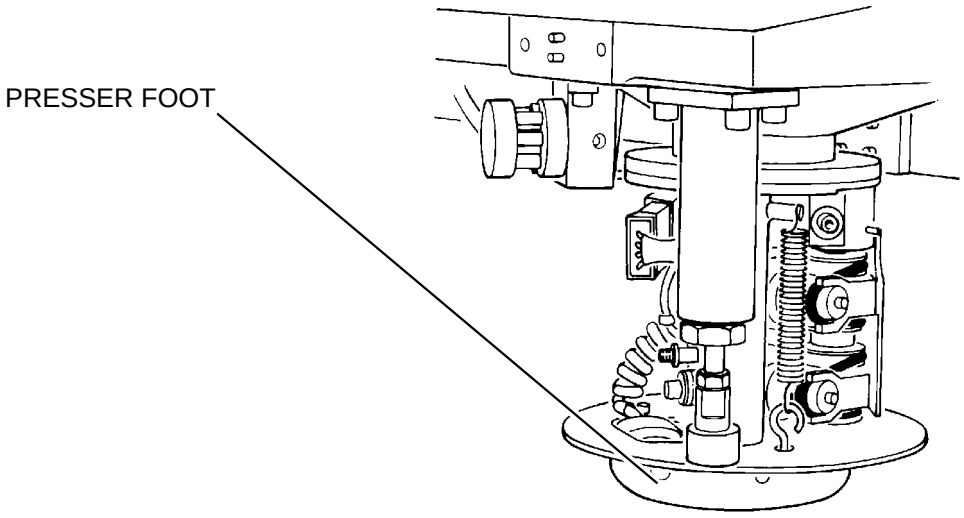
S-5200 Presser Foot. The presser foot flattens the top of the lay as the knife blade cuts it.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
grease gun	944233101
metric right-angle hex key set	945500079
Mobil 1® 5w-30 synthetic oil	120050209
standard right-angle hex key set	944022402

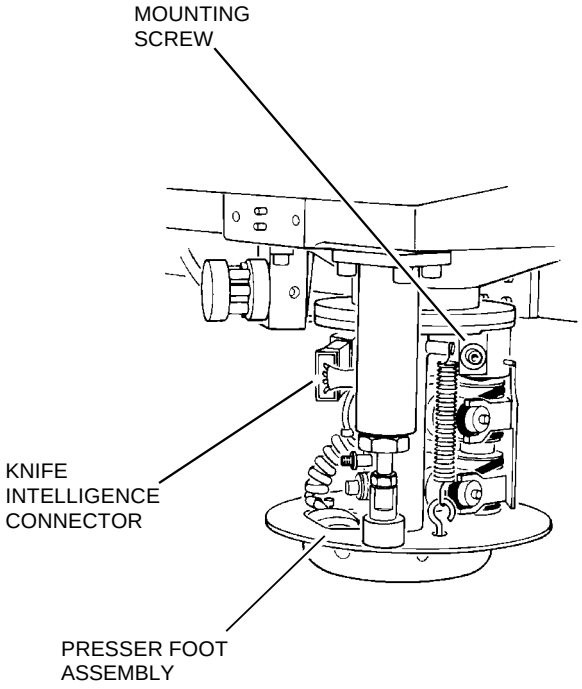
Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Check the presser foot shafts for dirt and debris. Clean them if needed.
4. Check the shafts for bends, nicks, and gouges. If you find any of these defects, call your service technician.
5. Check the knife intelligence wire for any breaks, nicks, and gouges. If you find any of these defects, call your service technician.
6. Check the presser foot for binding.
   a. At the operator workstation, decrease the presser foot bowl pressure to 0 kgf/cm^2 (0 psi).
   b. Slide the presser foot straight down. It should move smoothly without binding. Binding indicates a problem with the shafts and/or alignment of the lower blade guide.
   c. If you notice any binding, call your service technician.
   d. At the operator workstation, restore the presser foot bowl pressure to its original level.
7. Close the cutter head front cover (page 4-44).
8. Turn on the C-200B controller.

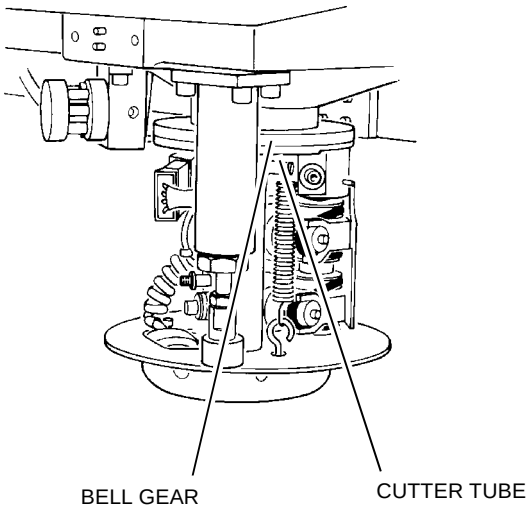


Clean/Lubricate

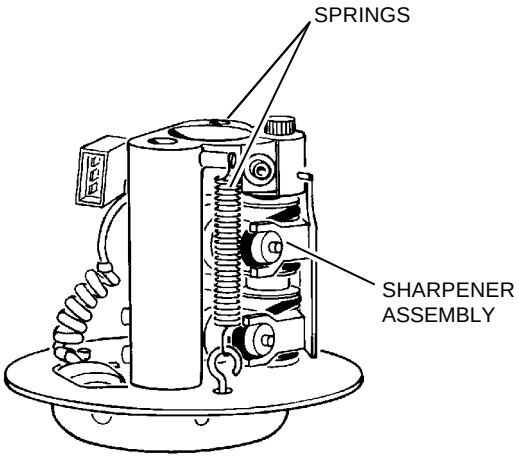
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Remove the knife assembly (page 4-56).
4. Unplug the Knife Intelligence sensor.



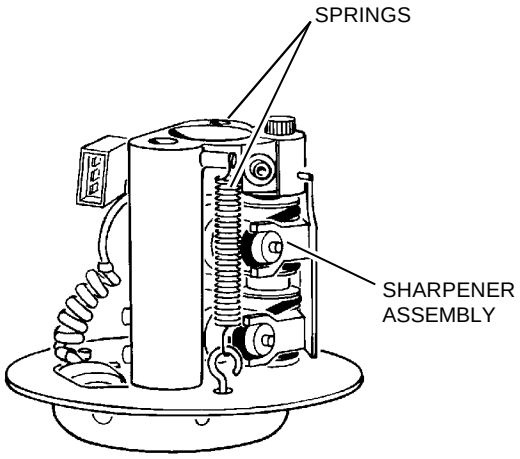
5. Loosen the mounting screw that holds the presser foot assembly on the cutter tube.
6. Lower the presser foot assembly and remove it from the cutter head.
7. Use a clean rag dampened with denatured alcohol to clean the inside of the cutter tube and the bell gear.



8. Remove the Knife Intelligence connector bracket screws from the presser foot assembly.
9. Remove the two springs.

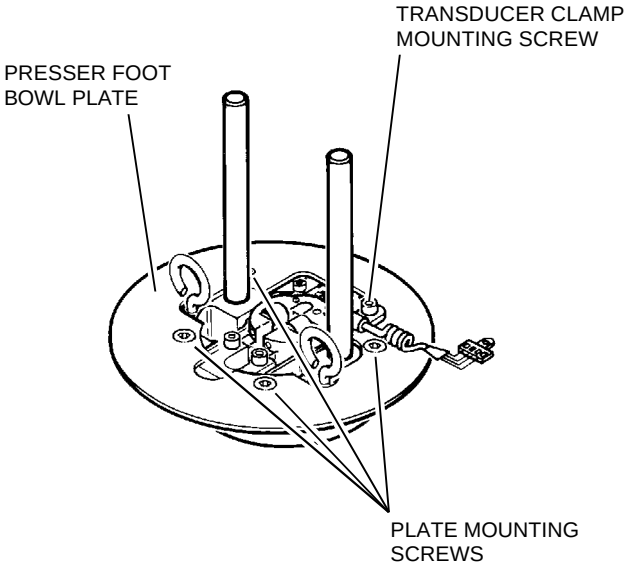


10. Lower the sharpener assembly off the presser foot assembly.



11. Remove the transducer cable clamp mounting screw.

CAUTION: Do not loosen the nuts on the back side of the sharpener assembly.

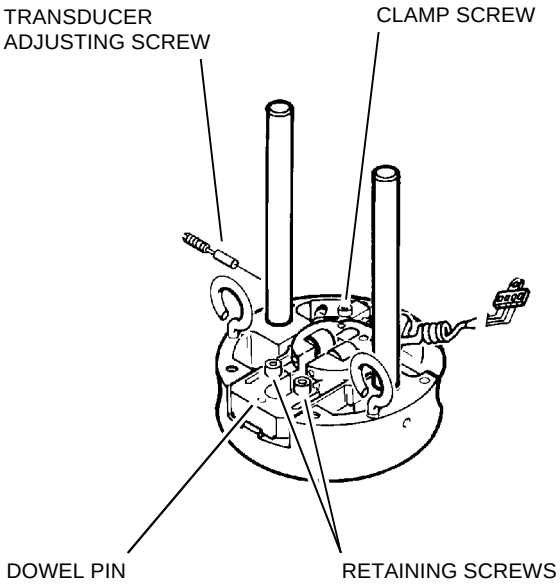


12. Remove the presser foot bowl plate mounting screws.

13. Remove the presser foot bowl plate.

14. Loosen the clamp screw by turning it counterclockwise.

15. Remove the transducer adjusting screw.

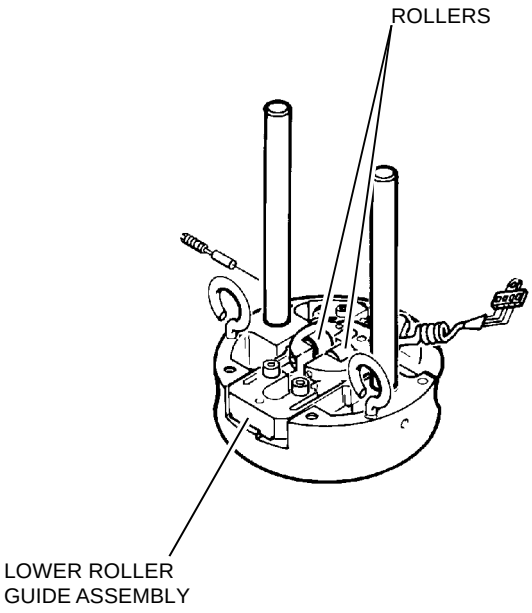


16. Lift out the lower roller guide assembly.

17. Dampen a lint-free clean cloth with denatured alcohol.

18. Clean the lower roller guide assembly with denatured alcohol.

19. Let the lower roller guide assembly dry completely.



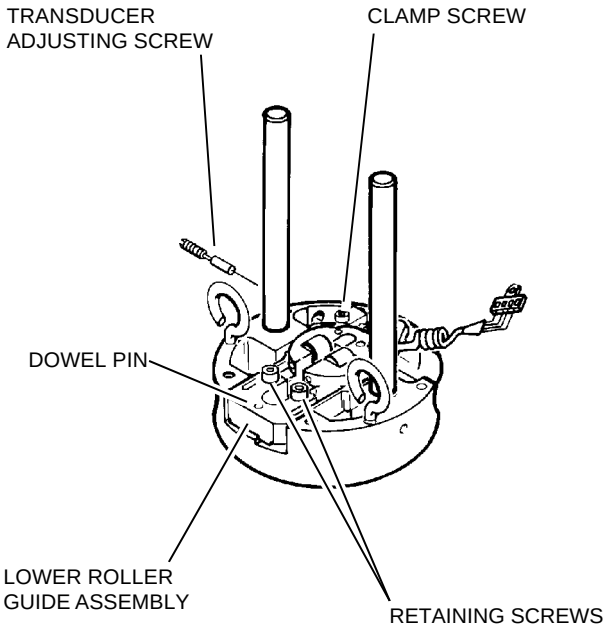
20. Inspect the rollers for wear and damage. Make sure they spin freely. If the rollers are worn or damaged, call your service technician.

CAUTION: **Excess oil is thrown onto fabric and damages it. Use as little oil as possible. It is better to lubricate lightly and more frequently, than to apply one heavy coat.**

CAUTION: **Only use synthetic oil. Non-synthetic oil can damage seals and bearings.**

21. Lubricate the pins of the rollers with a drop of Mobil 1® 5w-30 synthetic oil.

22. Put the lower roller guide assembly into the presser foot assembly.



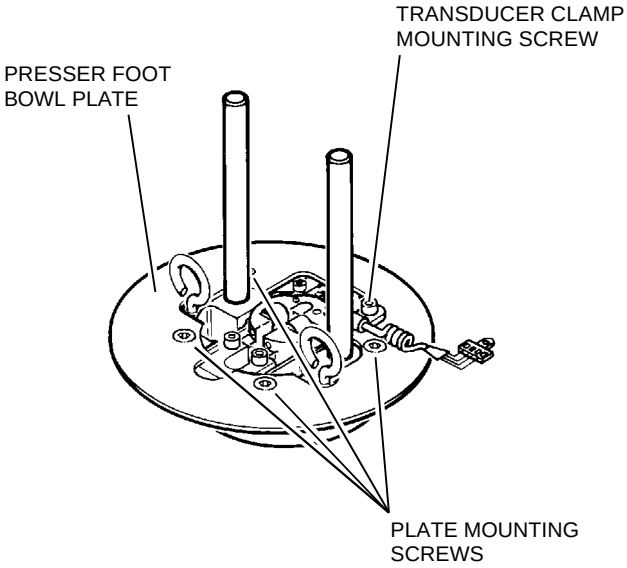
23. Install the lower roller guide onto the dowel pin.

24. Install the adjusting core.

25. Install the transducer adjusting screw.

26. Tighten the clamp screw.

27. Install the presser foot bowl plate mounting screws.



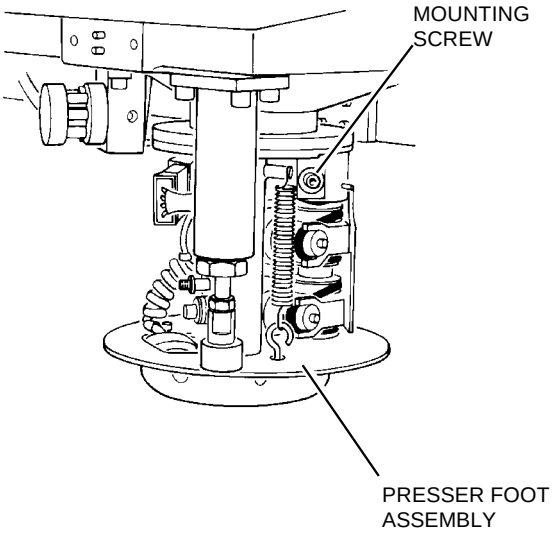
28. Install the transducer clamp mounting screw.

29. Put the sharpener assembly onto the presser foot bowl plate.

30. Install the two springs.

31. Install the Knife Intelligence connector bracket screws.

32. Install the presser foot assembly into the cutter head.



33. Tighten the mounting screw that holds the presser foot assembly on the cutter tube.

34. Plug in the Knife Intelligence sensor.

35. Install the knife blade (page 4-57).

36. Close the cutter head front cover (page 4-44).

37. Turn on the C-200B controller.

38. Run the C-200B software.

39. Run the transducer alignment diagnostic. See the *C-200B Software User's Guide* or release notes for more information about this procedure.

S-5200 Grinding Pulley Drive Belts.

The grinding pulley drive belts connect the sharpener motor to the grinding pulleys. These belts must be in good condition for the sharpener to work properly.

Required Tools and Supplies

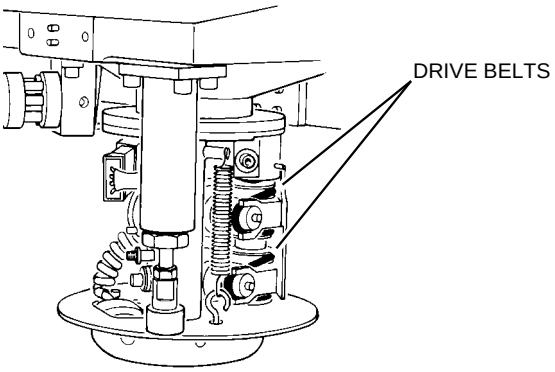
Item	GGT Part No.
cleaning solvent	308010101
grinding pulley drive belt (O-ring)	496500207
metric right-angle hex key set	945500079
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Check both drive belts for nicks and cuts. Replace a drive belt if it has any of these defects.

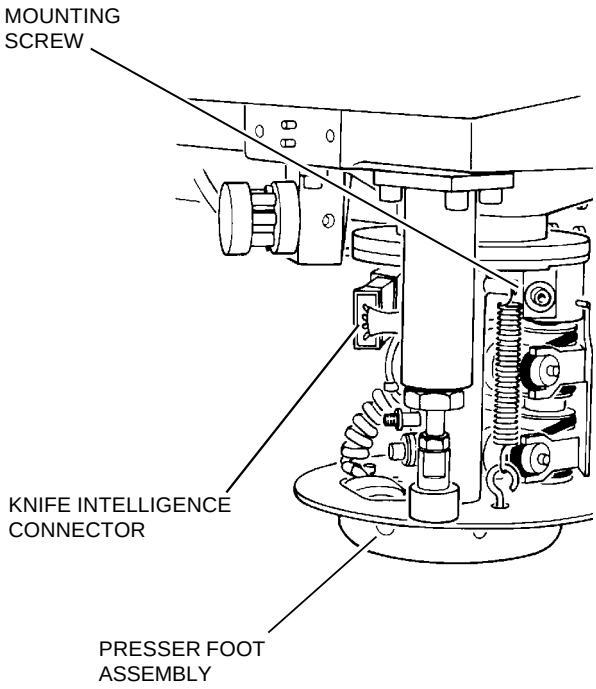
CAUTION: Do not use solvents on the drive belts. Solvents will damage the drive belts.

4. Make sure that there is no lubricant, oil, or grease on the drive belts. Replace a drive belt if it has a lubricant on it.
5. Close the cutter head cover (page 4-44).
6. Turn on the C-200B controller.

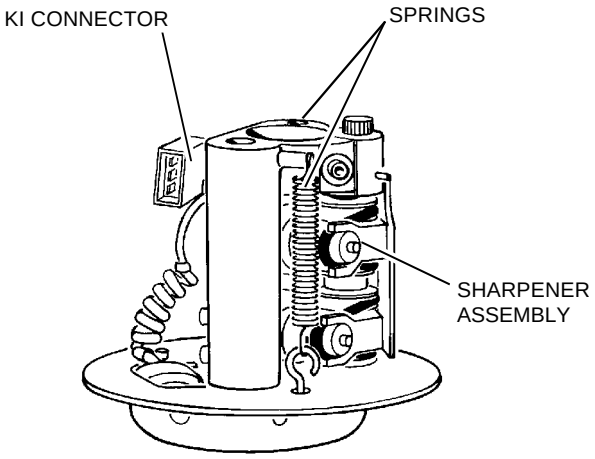


Remove

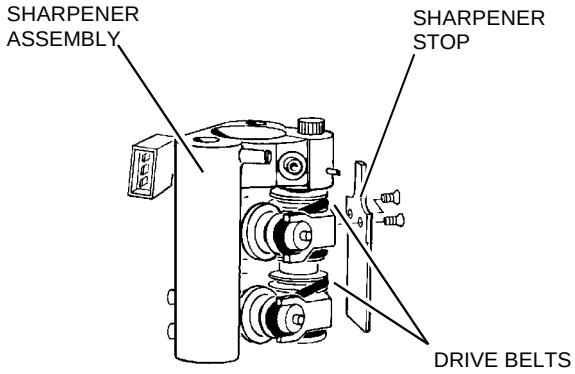
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Remove the knife assembly (page 4-56).
4. Unplug the Knife Intelligence sensor.
5. Loosen the mounting screw that holds the presser foot assembly on the cutter tube.



6. Lower the presser foot assembly and remove it from the cutter head.
7. Remove the two springs from the presser foot assembly.



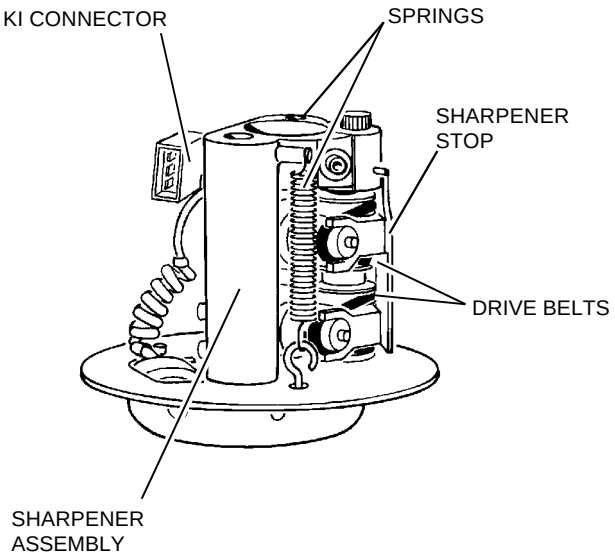
8. Lift the sharpener assembly off the presser foot assembly.
9. Remove the screw that holds the Knife Intelligence (KI) connector in place. from the sharpener assembly. This removes the KI connector.

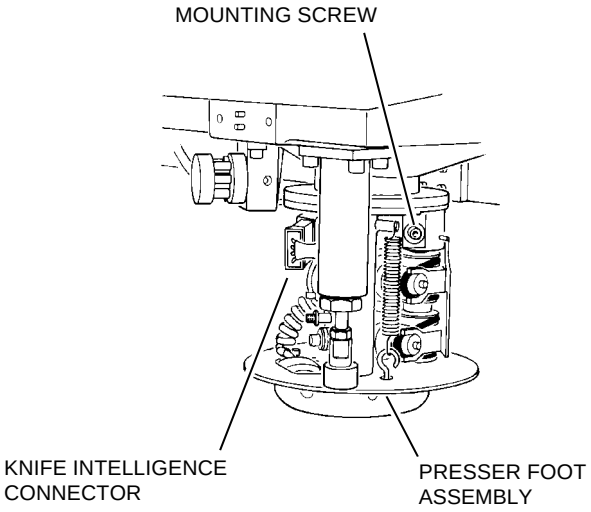


10. Remove the mounting screws from the sharpener stop.
11. Remove the sharpener stop.
12. Gently stretch each drive belt and slip it off the grinding pulleys.

Install

1. Slip each drive belt onto the grinding pulleys.
2. Install the sharpener stop plate with its mounting screws.
3. Place the sharpener assembly onto the presser foot assembly.
4. Install the Knife Intelligence (KI) connector mounting screw.
5. Install the two springs on the presser foot assembly.
6. Install the Knife Intelligence (KI) connector bracket screws.
7. Install the presser foot assembly into the cutter head.
8. Tighten the screw that holds the presser foot assembly on the cutter tube.
9. Plug in the Knife Intelligence Sensor.
10. Install the knife blade (page 4-57).
11. Close the cutter head front cover (page 4-44).
12. Turn on the C-200B controller.





S-5200 Grinding Pulley. A grinding pulley is a grit-covered metal wheel that sharpens the knife blade. Grinding pulley condition affects sharpening which, in turn, affects cutting performance.

Required Tools and Supplies

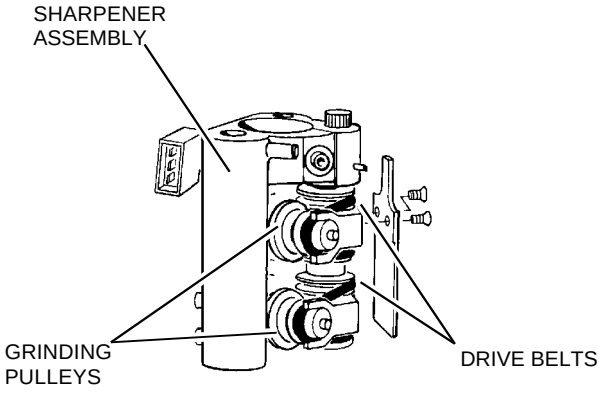
Item	GGT Part No.
cleaning solvent	308010101
grinding pulley 80 grit	043323000
small brass brush	N/A

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Inspect the grinding pulleys for missing grit, debris, and chips. Replace or clean the grinding pulley, as needed.
4. Close the cutter head front cover (page 4-44).
5. Turn on the C-200B controller.

Remove

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Remove the knife blade (page 4-56).
4. Remove the grinding pulley drive belts (page 4-65).
5. Slide the four grinding pulleys from their supports.



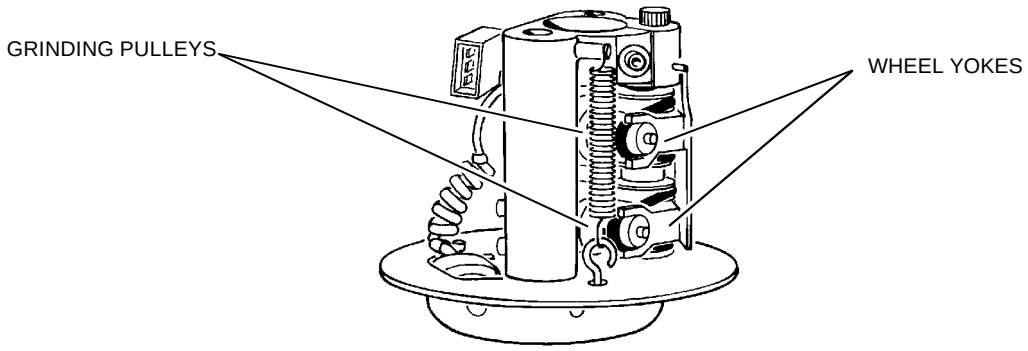
Clean

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Remove the knife blade (page 4-56).
4. Remove the grinding pulley drive belts (page 4-65).
5. Remove the grinding pulleys (page 4-67).

WARNING! Cleaning solvent is flammable. If it ignites, it may cause injury or death. Do not smoke or have other ignition sources near the solvent.

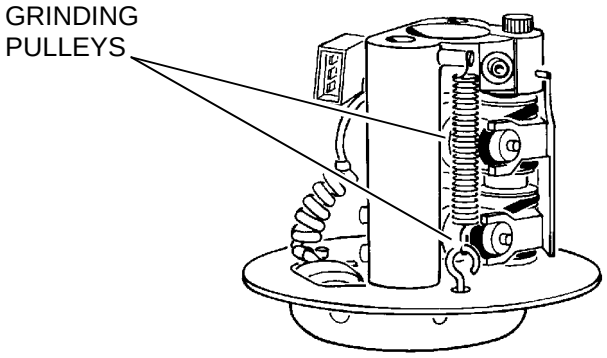
CAUTION: Do not get any cleaning solvent on any bearings because it will damage them.

6. Spray the grinding pulley thoroughly with cleaning solvent.
7. Using a stiff, brass brush, scrub the grinding pulley until you remove all deposits.
8. Air dry the grinding pulley until all solvent is gone.
9. Install the grinding pulley.
10. Check the wheel yokes for wear by trying to move them with your hand. If you can move the yokes easily, they are worn. Call your service technician if the yokes are worn.



Install

1. Slide the four grinding pulleys into their supports.
2. Install the grinding pulley drive belts (page 4-66).
3. Install the knife assembly (page 4-57).
4. Close the cutter head front cover (page 4-44).
5. Turn on the C-200B controller.



S-5200 Elevator Roundways

The elevator roundways are shafts on which the elevator rides up and down. As the elevator moves, it plunges and raises the knife.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
Mobil 1 5w-30 synthetic oil	120050209

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Inspect the roundways for dirt and lint build-up. Clean and lubricate them, if necessary.
4. Inspect the roundways for scratches, nicks, and gouges. If you see any of these problems, call your service technician.
5. Close the cutter head front cover (page 4-44).
6. Turn on the C-200B controller.

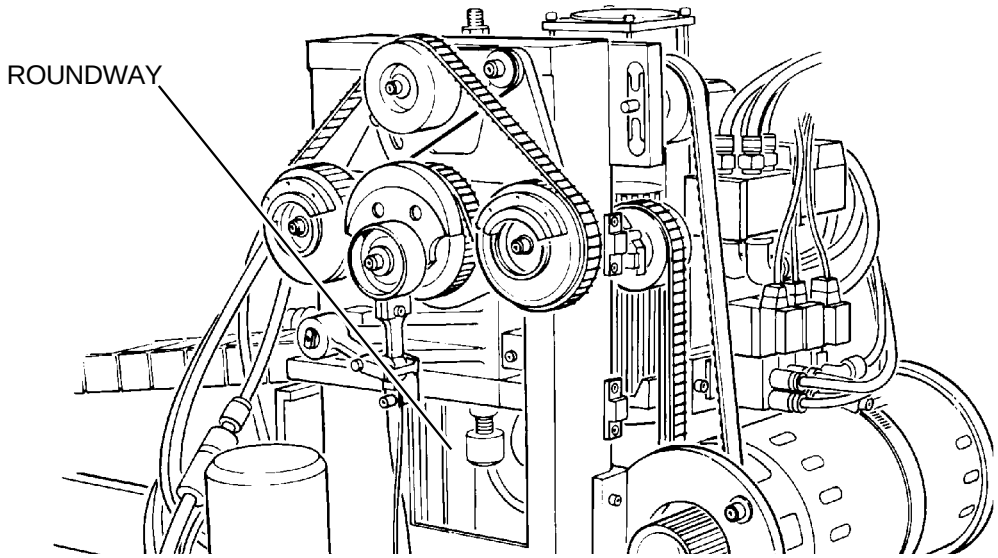
Clean/Lubricate

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).

CAUTION: Only use synthetic oil to lubricate the roundways. Non-synthetic oil can damage seals and bearings.

CAUTION: Excess oil is thrown onto fabric and damages it. Use as little oil as possible. It is better to lubricate lightly and more frequently than to apply one heavy coat.

3. Use the shop rag to wipe a light coat of Mobil 1 synthetic oil onto both roundways.
4. Close the cutter head front cover (page 4-44).
5. Turn on the C-200B controller.



S-5200 Up/Down Stops

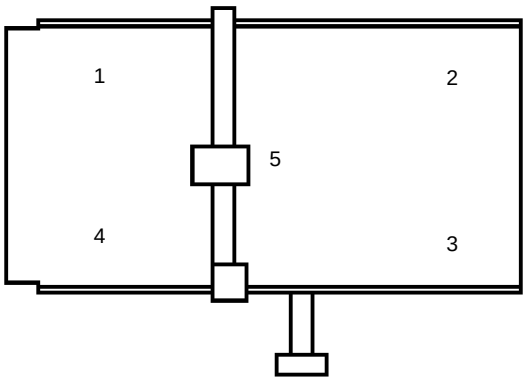
The up/down stops control the depth of knife cuts. If the down stop is set low, the knife cuts off the bristles in the BRISTLE SQUARES. If the down stop is set high, the knife does not cut bottom plies cleanly. Improper setting of the up stop causes poor sharpening.

Required Tools and Supplies

Item	GGT Part No.
metric combination wrench set	945500093
screwdriver set	944211601
standard combination wrench set	944002401

Inspect

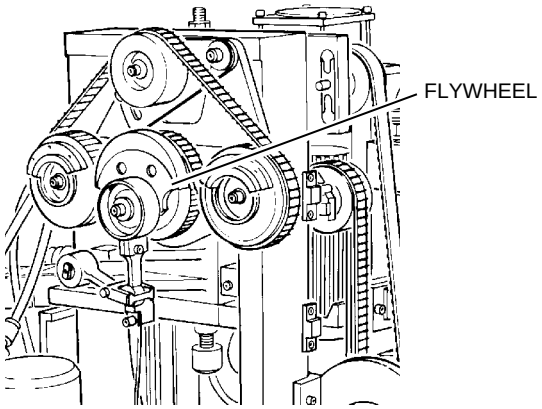
1. Turn on the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Cover the work surface with paper and then with plastic film from the sealer.
4. You must check the knife penetration at five points on the cutting surface. Move the cutter head to test point 1 on the work surface. Test points 1 through 4 are about 30.5 cm (1 ft) from each corner. Test point 5 is at the center of the work surface.



5. Plunge the knife and presser foot bowl in the following manner:
   a. At the BCP, turn on the **KNIFE** switch.
   b. At the **SYSTEM:** prompt, type **C200B**, then press **ENTER**.
   c. The monitor will display the following message:

      Enable SERVO POWER or press:
      D for Diagnostic Menu
      M for Download Menu
      Escape to ABORT...

   d. Type **D**.
   e. Press **ENTER**.
6. Move the flywheel to top-dead-center.



   a. Press the **SPACE** bar.
   b. Press **ENTER** to select:

      23 - IO Diagnostic

      The monitor displays the DG 23 menu.

   c. Use the arrow keys to highlight **Vacuum Enbl**.

d. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This turns on table vacuum.

e. Use the arrow keys to highlight **Knife Sol**.

f. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This plunges the knife and the presser foot bowl. Note that the number in the KNIFE SOL line changes from 1 to 0.

NOTE: Make a note of the air pressure reading on the presser foot air gauge on the C-200B controller. You will need to reset the regulator to that pressure when you are through with this procedure.

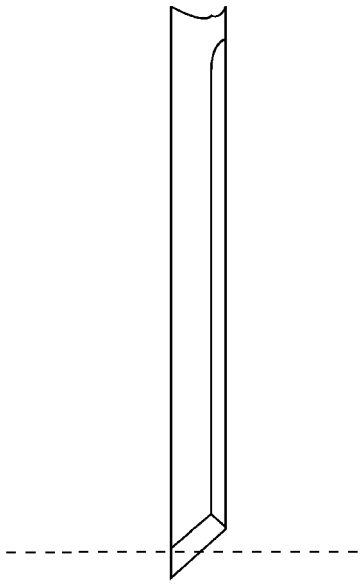
g. Turn off air to the presser foot bowl by releasing pressure at the regulator on the C-200B controller. Do this by turning the regulator counterclockwise. You can now manually raise the presser foot bowl to see the knife.

7. Check the down stop setting as follows:

a. With a pencil, mark the knife blade at the point it enters the plastic sealer.

b. On the C-200B controller, hold down the **CTRL** key and press the **SPACE** bar. The knife rises.

c. The pencil line should be 1.6 to 3.2 mm ($\frac{1}{16}$ to $\frac{1}{8}$ inches) above the tip of the knife blade.



d. Turn on air to the presser foot bowl by returning pressure at the regulator on the C-200B controller. Do this by turning the regulator clockwise.

8. Use the **JOYSTICK** to move the cutter head to the next test point and repeat steps 5. through 8. for test points 2 through 5. If needed, adjust the down stop.

9. On the BCP, press **VAC** to turn off table vacuum.

10. Press **Esc**. The monitor displays:

Enable SERVO POWER or press:
D for Diagnostic Menu
M for Download Menu
Escape to ABORT...

11. Press **Esc** to return to the **SYSTEM:** prompt.

12. Check the up stop setting.

    a. Position the clevis at top dead center.

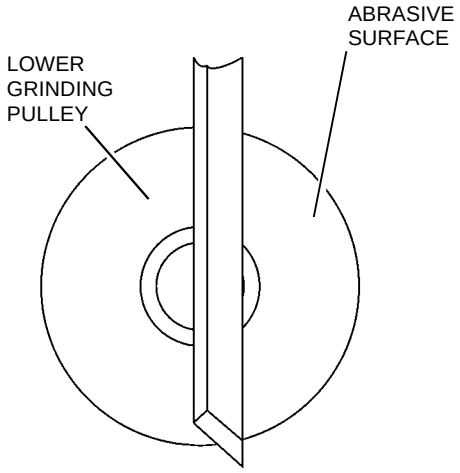
    b. Check the knife blade. The corner edge of the knife blade should be in the center of the abrasive surface of the lower grinding pulley.

    c. Adjust the up stop, if necessary.

13. Exit the C-200B program.

14. Turn off the C-200B controller.

15. Close the cutter head front cover (page 4-44).



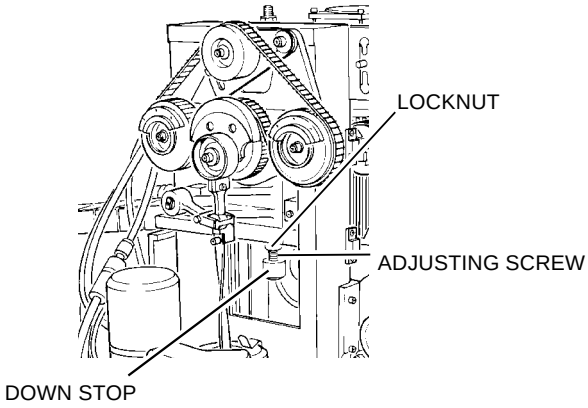
Adjust

If you find, during the up and down stop checks, (page 4-71) that you need to adjust the head up/down stops, follow this procedure.

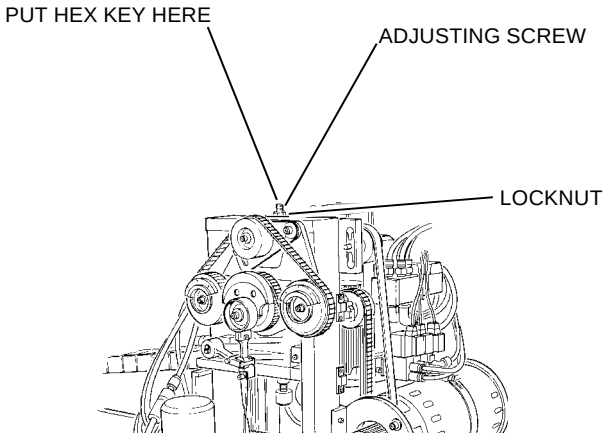
CAUTION: Too much penetration damages the work surface, too little keeps pieces from being cut completely.

NOTE: Because of tolerances, bristle penetration usually cannot be set to the same value for each test point. However, all test points must be within the proper range.

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-44).
3. Adjust the down stop:
   a. Loosen the locknut on the adjusting screw by turning it counterclockwise.
   b. Turn the adjusting screw clockwise or counterclockwise to change the depth of bristle penetration.
   c. Inspect the up/down stop settings as described on page 4-71.
   d. Tighten the locknut by turning it clockwise.
   e. Repeat steps a. through d. until bristle penetration is set correctly.



4. Adjust the up stop.
   a. Loosen the lock nut on the adjusting screw by turning it counterclockwise.
   b. Put a hex key into the adjusting screw. Turn the adjusting screw clockwise or counterclockwise to change the up stop setting.
   c. Inspect the up/down stop settings as described on page 4-71.
   d. Tighten the lock nut by turning it clockwise.
   e. Repeat steps a. through d. until the up stop is set correctly.
5. Close the cutter head front cover (page 4-44).
6. Turn on the C-200B controller.



S-5200 Drill

The S-5200 drill (Figure 4-7) attaches to the cutter head. It lets the GERBERcutter automatically make drill holes as it cuts the material.

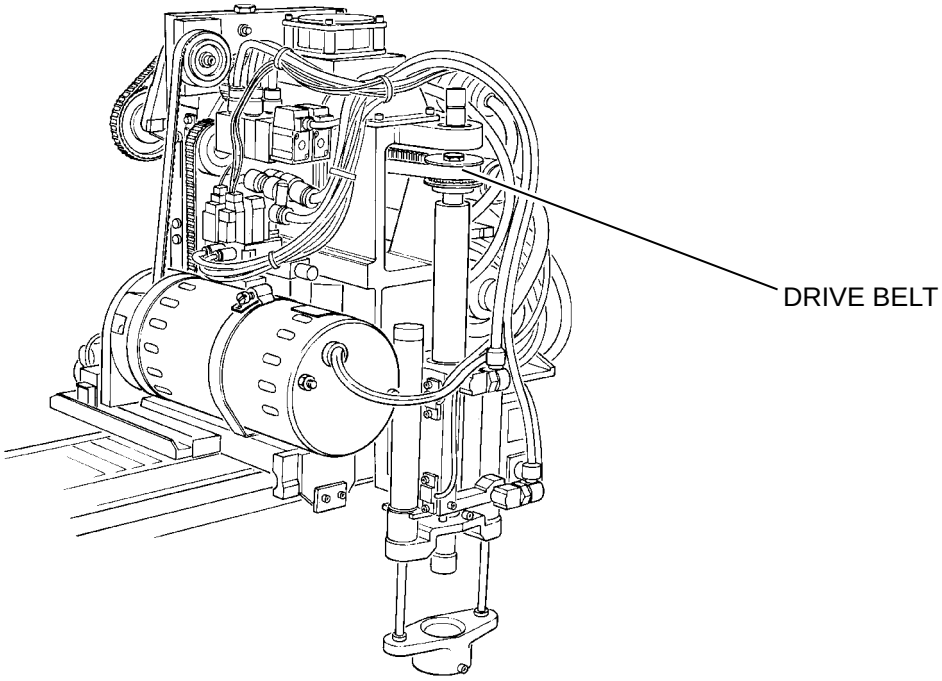
S-5200 Drill Drive Belt. The drive belt connects the drill to the drill motor.

Required Tools and Supplies

Item	GGT Part No.
belt deflection gauge	045412000
metric combination wrench set	945500093
metric right-angle hex key set	945500079
pliers	944003903
standard combination wrench set	944002401
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-45).
3. Remove the cutter head back cover (page 4-46).
4. Check the drive belt for glazing, cuts, and nicks. Replace it, if necessary.
5. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. Adjust the drive belt, if necessary.
6. Install the cutter head back cover (page 4-46).
7. Install the cutter head front cover (page 4-45).
8. Turn on the C-200B controller.

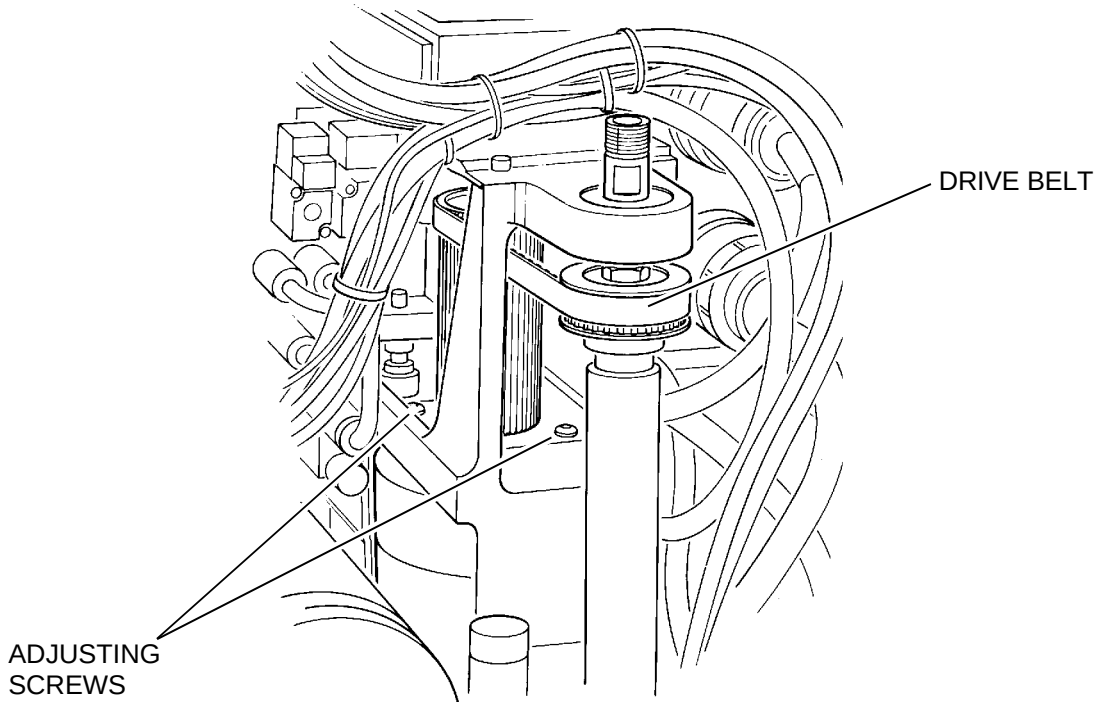


Remove

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-45).
3. Remove the cutter head back cover (page 4-46).
4. Remove the drill bit and ejector rod (page 4-79).
5. Loosen the four adjusting screws.
6. Slide the drill motor toward the drill.
7. Slide the drive belt off the pulleys.

Install

1. Slide the drive belt onto the pulleys.
2. Slide the drill motor to apply the correct tension to the drive belt.
3. Tighten the adjusting screws.
4. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. If the tension is not correct, loosen the adjusting screws and repeat steps 2. through 4. until the deflection is correct.
5. Install the drill bit and ejector rod (page 4-80).
6. Install the cutter head back cover (page 4-46).
7. Install the cutter head front cover (page 4-45).
8. Turn on the C-200B controller.

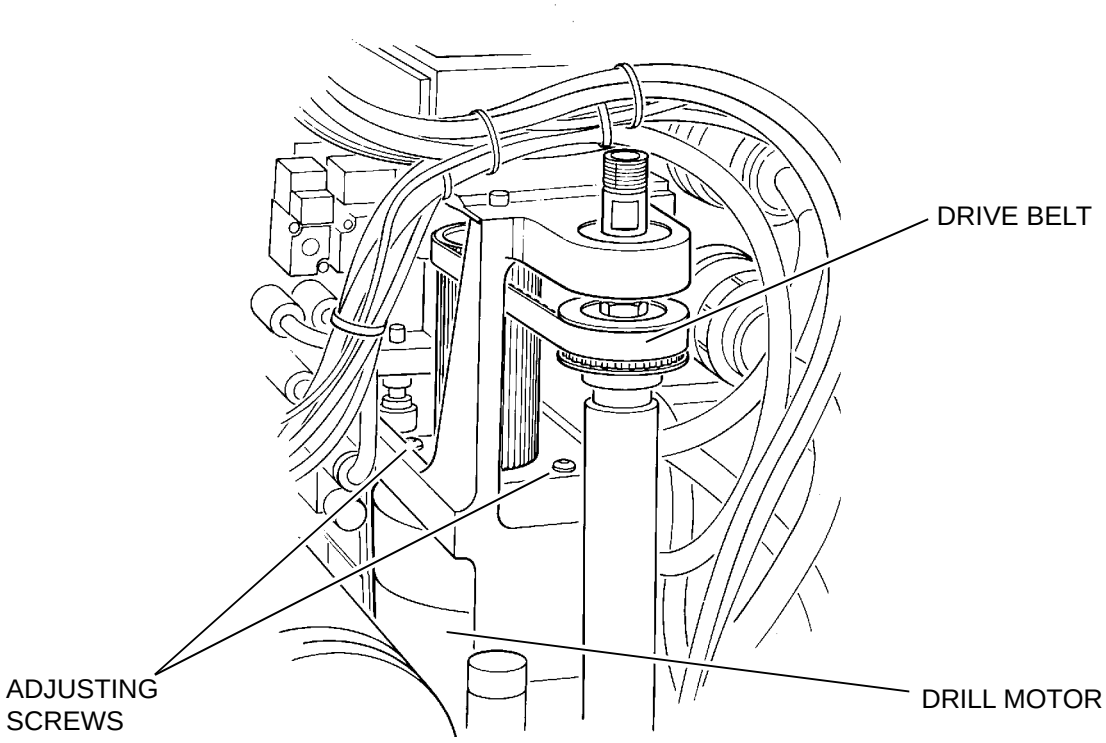


Adjust

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-45).
3. Remove the cutter head back cover (page 4-46).
4. Loosen the drill motor adjusting screws.
5. Slide the drill motor toward the drill to loosen the drive belt.

   OR

6. Slide the drill motor away from the drill to tighten the drive belt.
7. Tighten the mounting screws.
8. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. Repeat steps 4. through 7. until the drill drive belt tension is correct.
9. Install the cutter head back cover (page 4-46).
10. Install the cutter head front cover (page 4-45).
11. Turn on the C-200B controller.



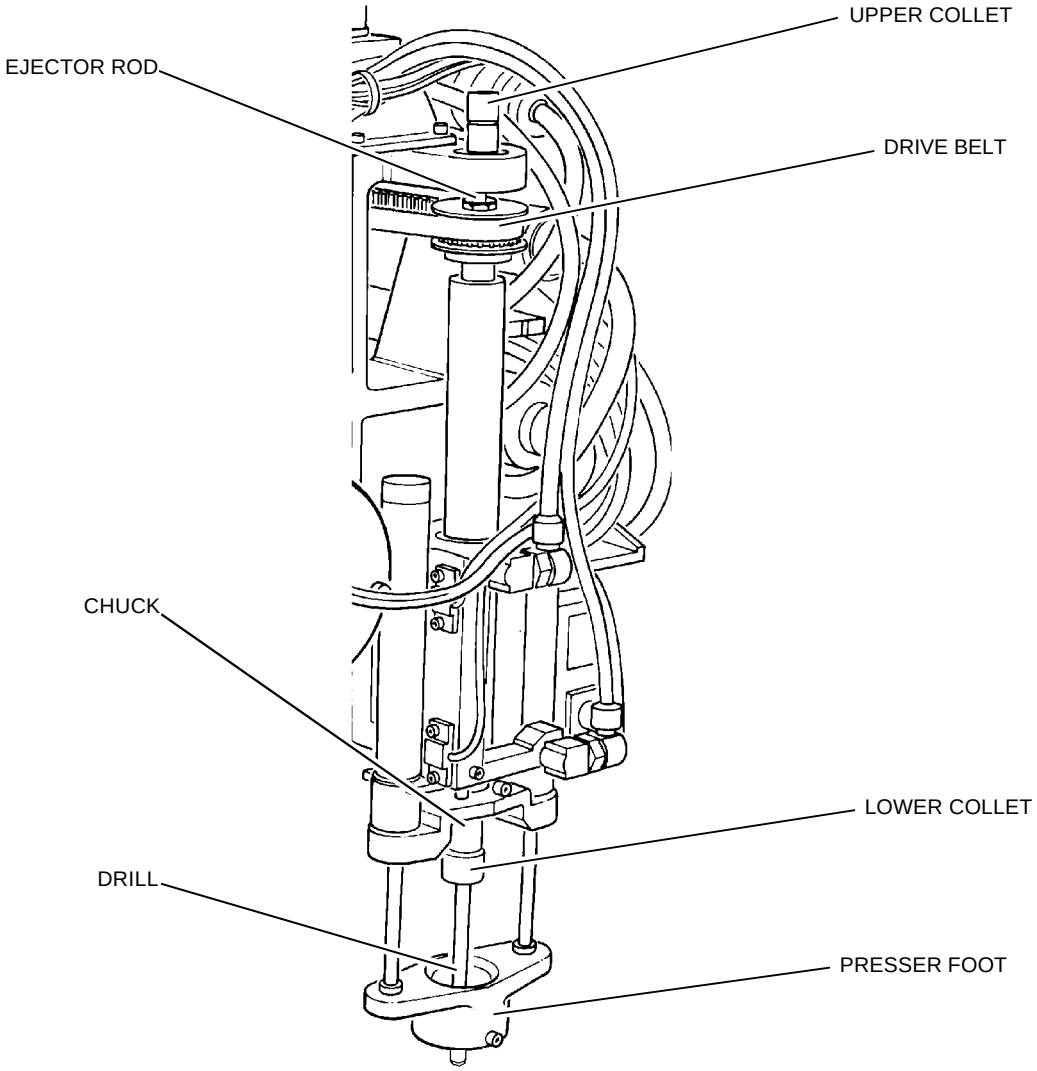
S-5200 Drill Bit. The drill bit is the part of the drill that cuts holes in the material. Drill bits are available in a variety of sizes and types.

Required Tools and Supplies

Item	GGT Part No.
drill bits, ejector rods, collets	see Table 4-3
standard combination wrench set	944002401

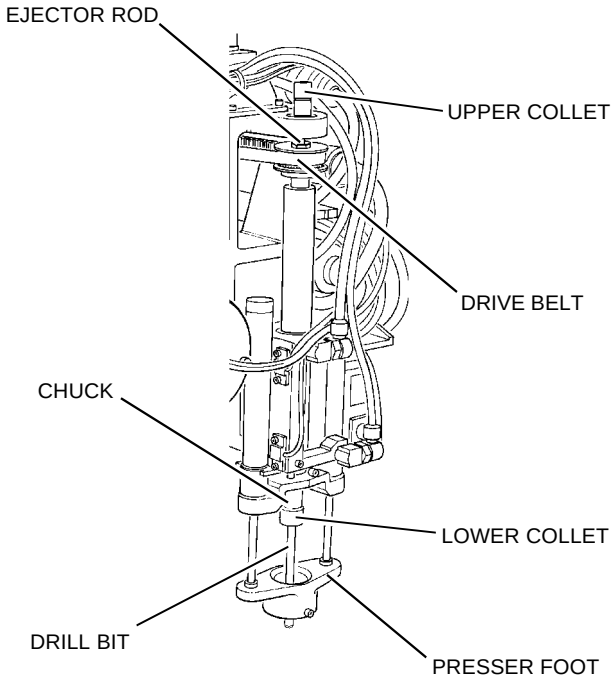
Inspect

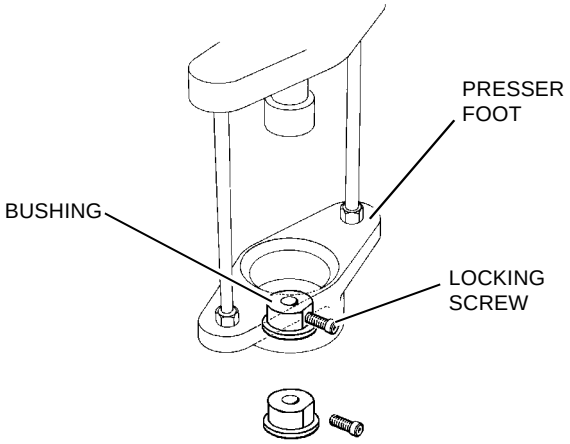
1. Turn off the C-200B controller.
2. Remove the cutter head back cover (page 4-46).
3. Check the cutting surface of the drill bit for nicks, burrs, and dullness. Check that the drill bit is not bent. If necessary, replace the drill bit.
4. Install the cutter head back cover (page 4-46).
5. Turn on the C-200B controller.



Remove

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-45).
3. Remove the cutter head back cover (page 4-46).
4. If you are using a hollow bit, remove the ejector rod.
   a. Hold the chuck in place with a wrench.
   b. Use another wrench to loosen the upper collet.
   c. Slide the ejector rod up and out through the center of the collet.
5. Remove the drill bushing.
   a. Loosen the locking screw.
   b. Pull the bushing out from the bottom of the presser foot assembly.
6. Remove the drill bit.
   a. Hold the chuck in place with a wrench.
   b. Use another wrench to loosen the lower collet.
   c. Pull the drill bit down out of the collet through the presser foot assembly.





Install

1. If you are installing a new drill bit, use Table 4-3 to select the matching ejector rod and collet.

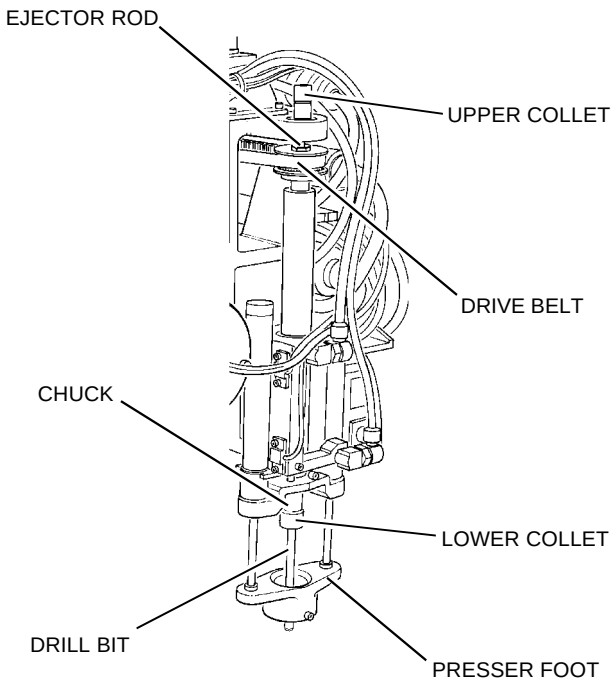
2. Select and install the new drill bit.

   a. Slide the drill bit up through the center of the lower collet until the drill bit will not slide up any more.

   b. Hold the chuck in place with a wrench.

   c. Tighten the lower collet finger tight.

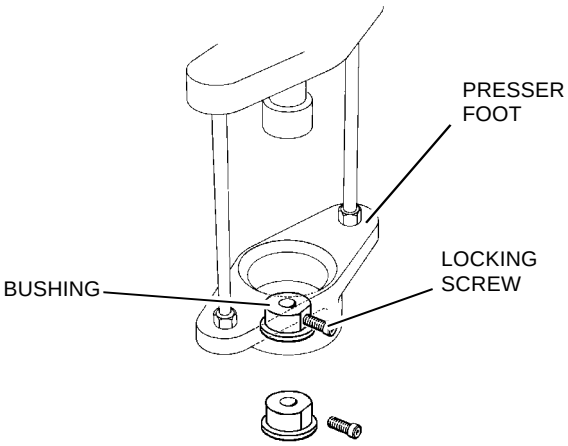
   d. With another wrench, tighten the lower collet ¼ turn more. This holds the drill in place.



3. Install the drill bushing.

   a. Slide the drill bushing up into place from under the presser foot assembly. The bushing fits around the drill bit.

   b. Install the locking screw.

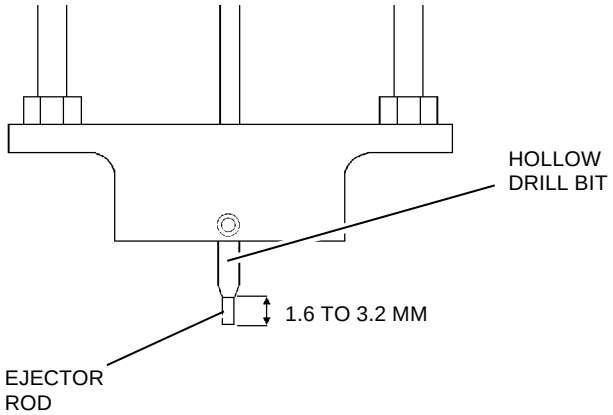


4. If you are installing a hollow bit, install the correct ejector rod (see Table 4-3).

   a. Make sure that the upper collet is in place and loose.

   b. Slide the ejector rod down through the center of the collet.

   c. Align the ejector rod so that it is 1.6 to 3.2 mm ($\frac{1}{16}$ in. to $\frac{1}{8}$ in.) lower than the bottom of the drill with the drill up.

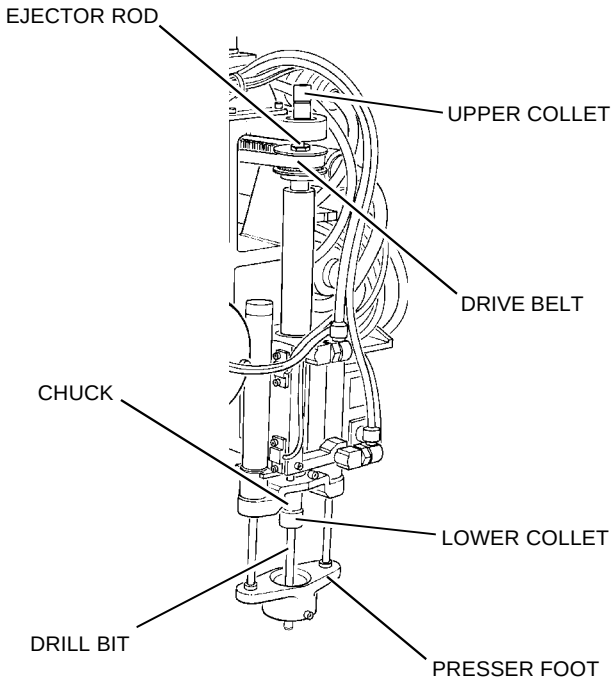


d. Tighten the upper collet finger tight.

e. Use a wrench to tighten the upper collet ¼ turn more. This holds the ejector rod in place.

5. Tighten the chuck finger-tight.

6. Use an open-end wrench to tighten the chuck ¼ turn more.



7. Check drill penetration into the bristle.

a. Turn on the C-200B controller.

b. At the BCP, turn on the **KNIFE** switch.

c. At the **SYSTEM:** prompt, type **C200B**, then press **ENTER**.

d. The monitor will display the following message:

Enable SERVO POWER or press:
D for Diagnostic Menu
M for Download Menu
Escape to ABORT...

e. Type **D**.

f. Press **ENTER**.

g. Press the **SPACE** bar to select:

23 - IO Diagnostic

h. Press **ENTER**.

The monitor displays the DG 23 menu.

i. Use the arrow keys to highlight **Drill Motor**.

j. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This turns on the drill motor.

k. Use the arrow keys to highlight **Drill Sol**.

l. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This plunges the drill and the presser foot bowl.

m. With a pencil, mark the drill at the point it enters the bristle.

n. On the C-200B controller, hold down the **CTRL** key and press the **SPACE** bar. The drill rises.

o. Press **Esc** to exit the diagnostic.

p. Turn off the C-200B controller.

q. Measure the distance from the pencil line on the drill to the tip of the drill. The pencil line should be 6 to 7 mm (¼ inch) above the tip of the drill.

8. If the pencil line is not the correct distance from the tip of the drill, adjust the drill penetration.

    a. Hold the chuck in place with a wrench.

    b. Use another wrench to loosen the lower collet.

    c. Slide the drill bit up or down to decrease or increase drill penetration.

    d. Hold the chuck in place with a wrench.

    e. Tighten the lower collet finger tight.

    f. With another wrench, tighten the lower collet ¼ turn more. This holds the drill in place.

    g. Repeat steps 7. and 8. until drill penetration is correct.

9. Install the cutter head back cover (page 4-46).

10. Install the cutter head front cover (page 4-45).

11. Turn on the C-200B controller.

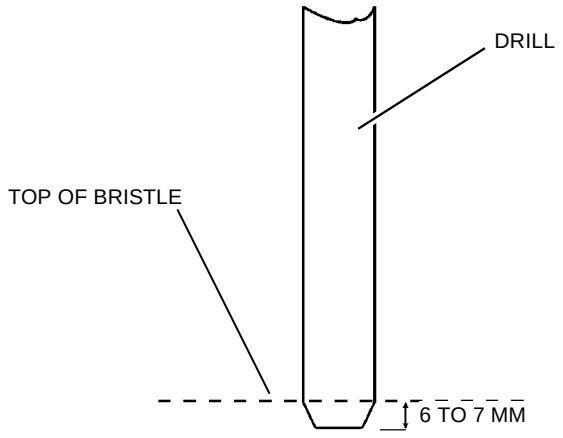


Table 4-3. S-5200 Standard Drill Components

Drill Bit			Accessories Part No.
Size (mm/in.)	Type	GGT Part No.	
1.2 / 0.046	solid	057500000	055738020
1.6 / 0.062	solid	066598000	055738028
2.0 / 0.078	solid groove point	062396000	055738027
2.4 / 0.093	half-round	058244000	055738023
2.4 / 0.093	hollow	055544003	055738000
3.2 / 0.125	half-round	066600000	055738029
3.2 / 0.125	hollow	055544004	055738001
4.0 / 0.156	hollow	055543007	055738002
4.8 / 0.187	hollow	055543008	055738003
6.4 / 0.250	hollow	055545003	055738004
7.9 / 0.312	hollow	055545004	055738005

S-7200 Cutter Head

This section describes maintenance only of the S-7200 cutter head (see page 4-44 for information about the S-5200 cutter head). The cutter head (Figure 4-3) contains the knife and does the actual cutting of material. It moves across the cutting table on the beam.

S-7200 Front Cover

The cutter head front cover encloses the cutter head. It protects the cutter head from damage and the operator from injury. The cutter head front cover is hinged so that you can lift the front of the cover out of the way to do maintenance. For some procedures, though, you may want to remove the entire cover.

Required Tools and Supplies

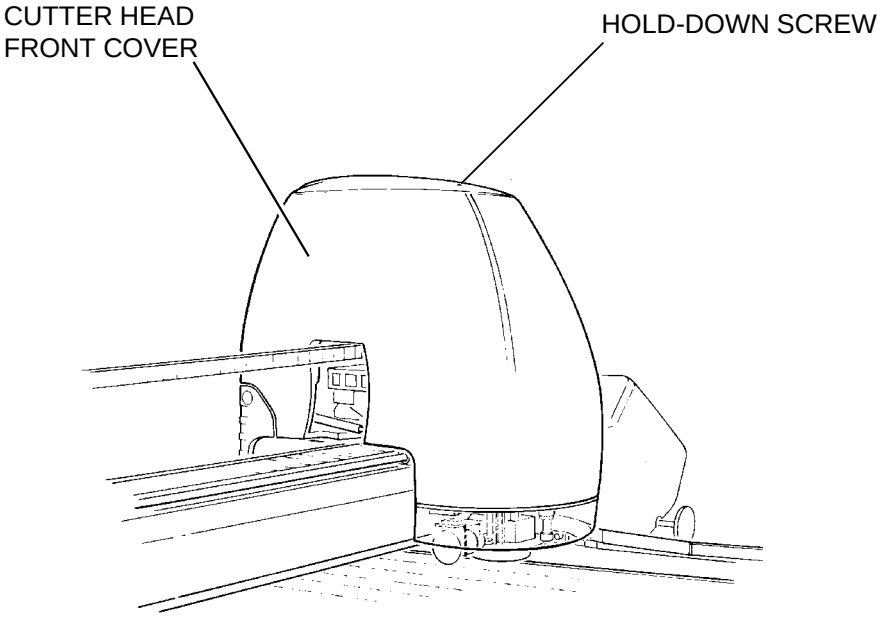
Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Open

1. Turn off the C-200B controller.
2. Remove the hold-down screw from the top of the cutter head front cover.
3. Lift the cutter head front cover.

Close

1. Lower the cutter head front cover.
2. Install the cutter head cover hold-down screw.
3. Turn on the C-200B controller.

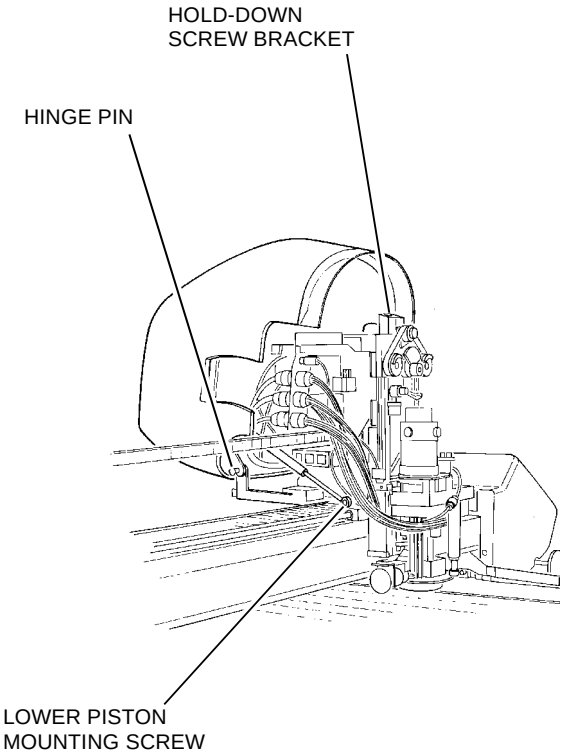


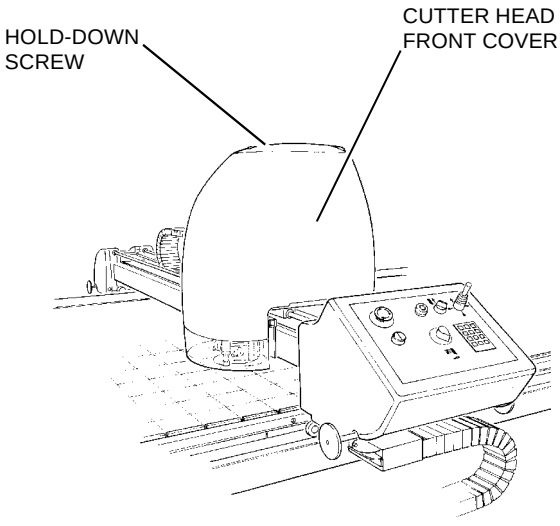
Remove

1. Turn off the C-200B controller.
2. Remove the hold-down screw from the top of the cutter head cover.
3. Open the cutter head cover (page 4-84).
4. Remove the lower piston mounting screw.
5. Remove the two hinge pins.
   a. Push in the release button in the center of the hinge-pin head.
   b. While holding in the release button, pull the hinge pin from the cutter head cover.
   c. Repeat steps a. and b. for the second hinge pin.
6. Lift the head cover from the cutter head.

Install

1. Lower the cutter head cover onto the cutter head.
2. Install the two hinge pins.
   a. Push in the release button in the center of the hinge-pin head.
   b. While holding in the release button, push the hinge pin into the hinge-pin holes in the cutter head cover and its mounting bracket.
   c. Repeat steps a. and b. for the second hinge pin.
3. Install the lower piston mounting screw.
4. Close the cutter head cover (page 4-84).
5. Install the hold-down screw into the top of the cutter head cover.
6. Turn on the C-200B controller.





S-7200 Back Cover

The cutter head back cover encloses the part of the cutter head that contains the drill. It protects the drill from damage and the operator from injury. You may need to remove this cover to do maintenance on the cutter head and drill.

Required Tools and Supplies

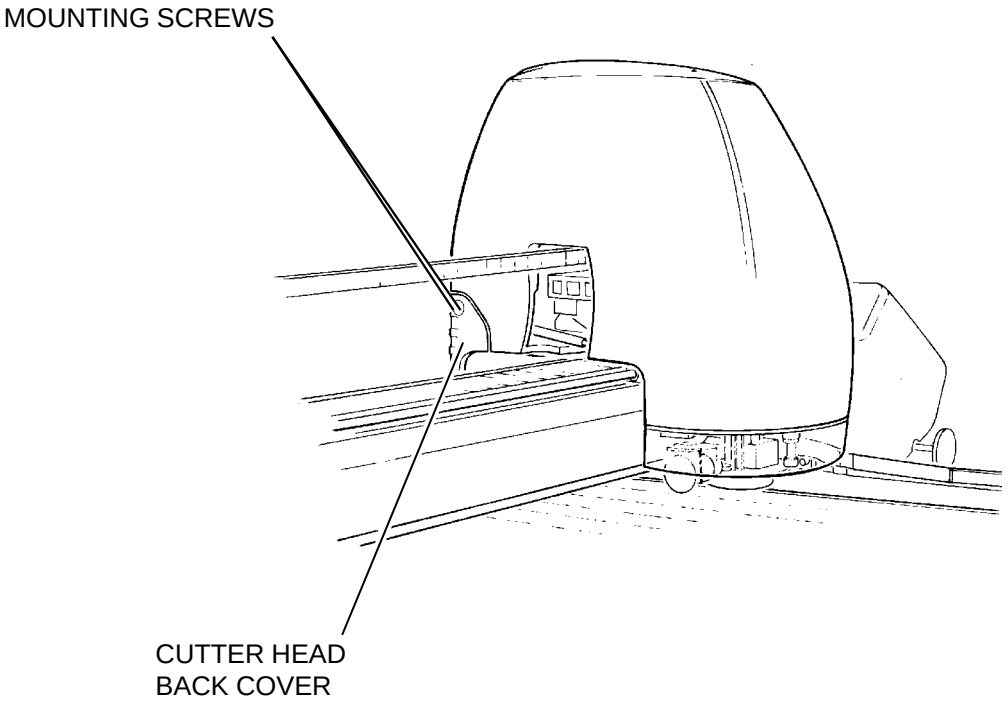
Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Remove

1. Turn off the C-200B controller.
2. Remove the mounting screws from the cutter head back cover.
3. Remove the cutter head back cover.

Install

1. Align the screw holes in the cutter head back cover with those in the mounting bracket.
2. Install the cutter head back cover mounting screws.
3. Turn on the C-200B controller.



S-7200 C-Axis Assembly

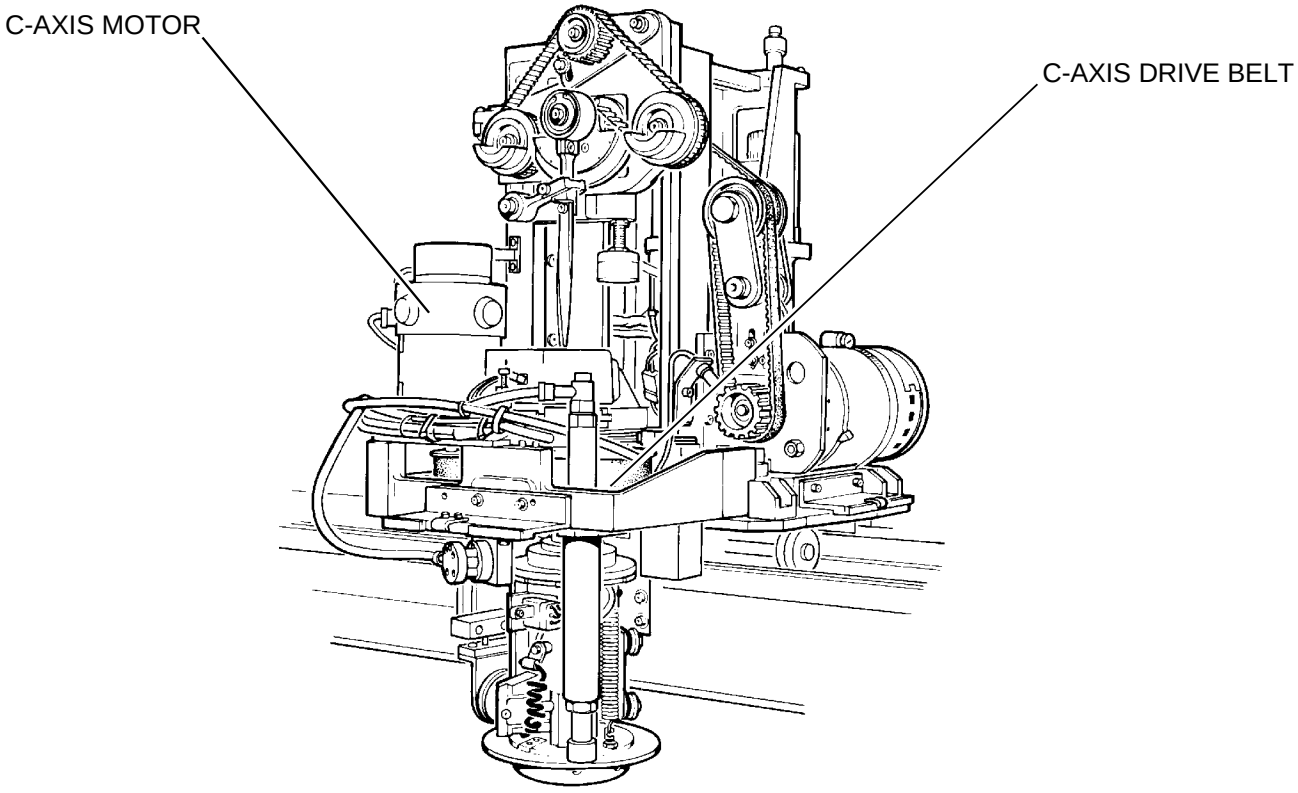
The C-axis assembly (Figure 4-4) includes the C-axis motor and drive belt. The C-axis assembly turns the knife blade to cut corners, notches, curves, and other complex shapes.

Required Tools and Supplies

Item	GGT Part No.
metric T-handle hex key set	945500089
standard T-handle hex key set	945500051

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Manually turn the C-axis assembly several times to the right and left. It should turn freely without binding or noise.
4. If you find any defects, call your service technician.
5. Close the cutter head front cover (page 4-84).
6. Turn on the C-200B controller.



S-7200 C-Axis Drive Belt. The C-axis drive belt links the C-axis motor pulley and the C-axis pulley to turn the knife blade about the C-axis. The drive belt must be in good condition and properly tensioned for accurate cutting.

Required Tools and Supplies

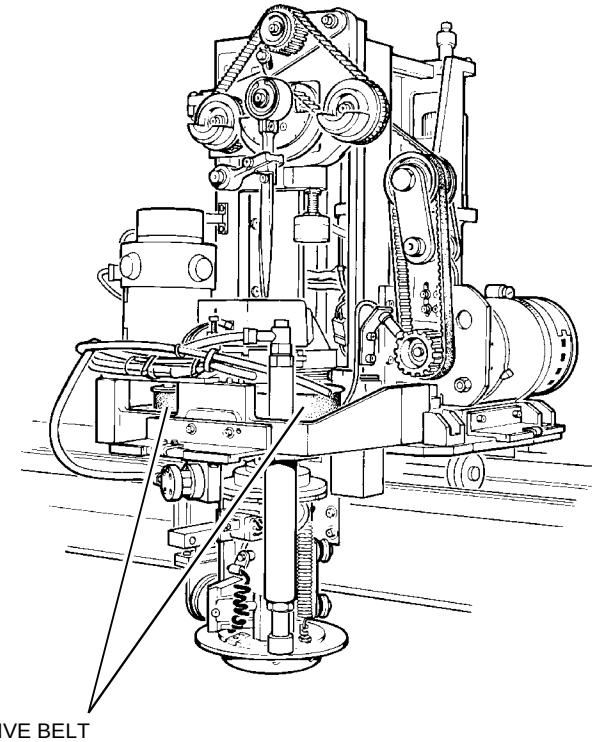
Item	GGT Part No.
C-axis drive belt	180500075
metric right-angle hex key set	945500079
spring scale, 0 - 23 kg (0 - 50 lb)	945500252
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Inspect the drive belt for nicks, cuts, and gouges. Replace it if you find any of these defects.
4. Visually inspect the belt for proper tensioning. Adjust it, if necessary.
5. Close the cutter head front cover (page 4-84).
6. Turn on the C-200B controller.

Remove

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Loosen the three retaining screws for the C-axis motor.
4. Slide the C-axis motor toward the C-axis assembly.
5. Slip the C-axis drive belt off the pulley that is on the C-axis motor.
6. Remove the C-axis drive belt from around the C-axis.



Install

1. Put the drive belt onto the pulleys on the C-axis motor and C-axis assembly.

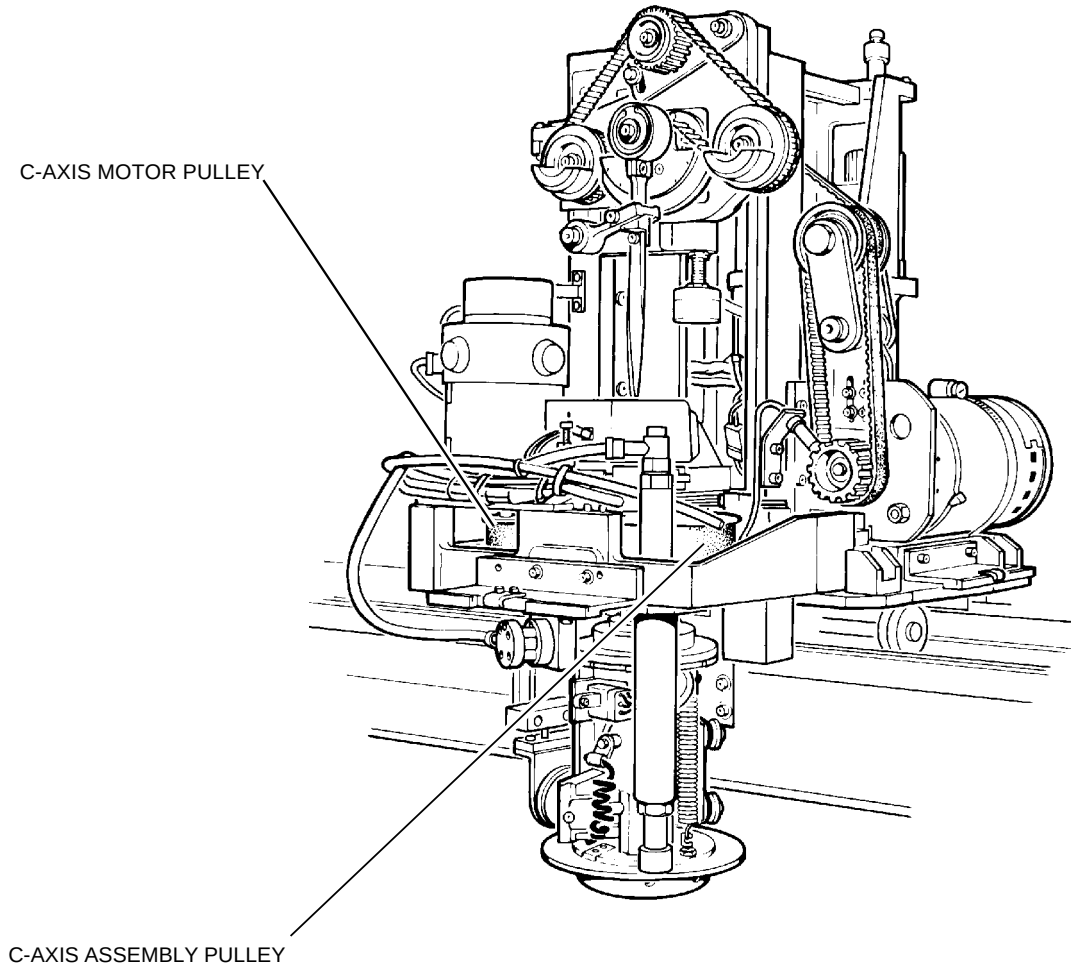
2. Hook the end of the spring scale to the hole in the C-axis adjusting plate.

3. Pull on the spring scale until it reads 9.09 kg (20 lb).

4. While keeping proper tension on the spring scale, tighten the screws that retain the C-axis motor.

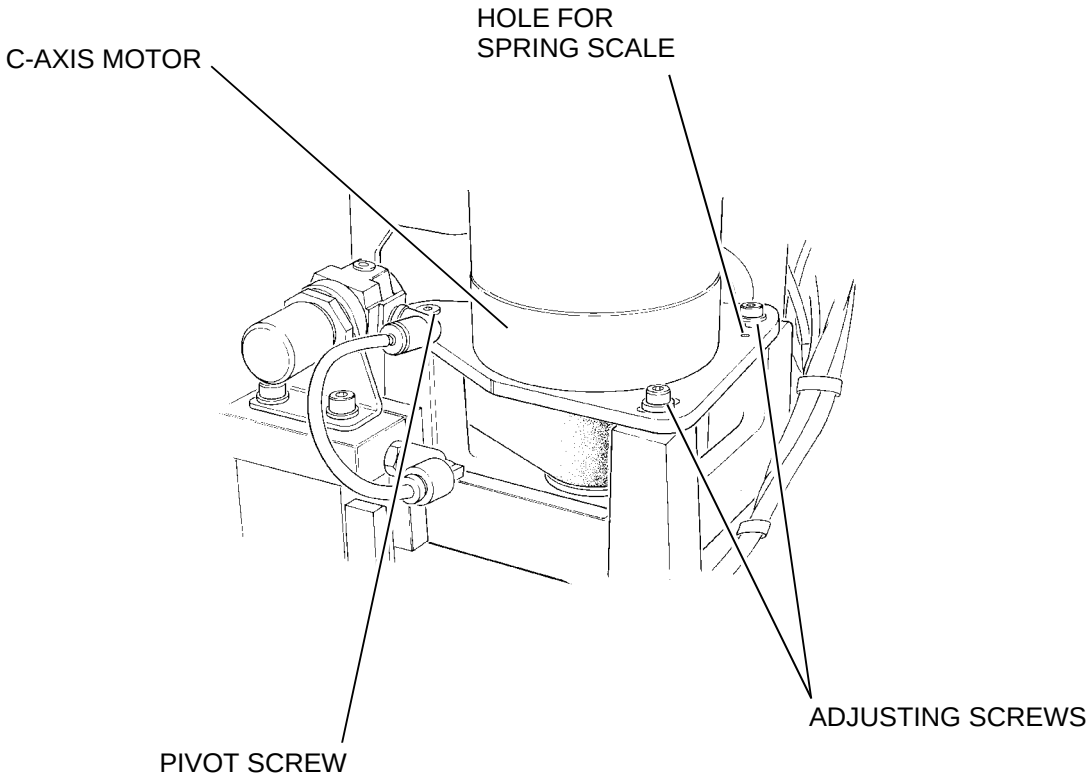
5. Close the cutter head front cover (page 4-84).

6. Turn on the C-200B controller.



Adjust

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Loosen the two C-axis motor adjusting screws.
4. Loosen the C-axis motor pivot screw.
5. Make sure that the drive belt is in mesh with the teeth on the C-axis motor pulley and C-axis pulley. Rotate the C-axis to mesh the belt with the pulley teeth if needed.
6. Hook the end of the spring scale to the hole in the C-axis adjusting plate.
7. Pull on the spring scale until it reads 9.09 kg (20 lb).
8. While keeping proper tension on the spring scale, tighten the screws that retain the C-axis motor.
9. Close the cutter head front cover (page 4-84).
10. Turn on the C-200B controller.



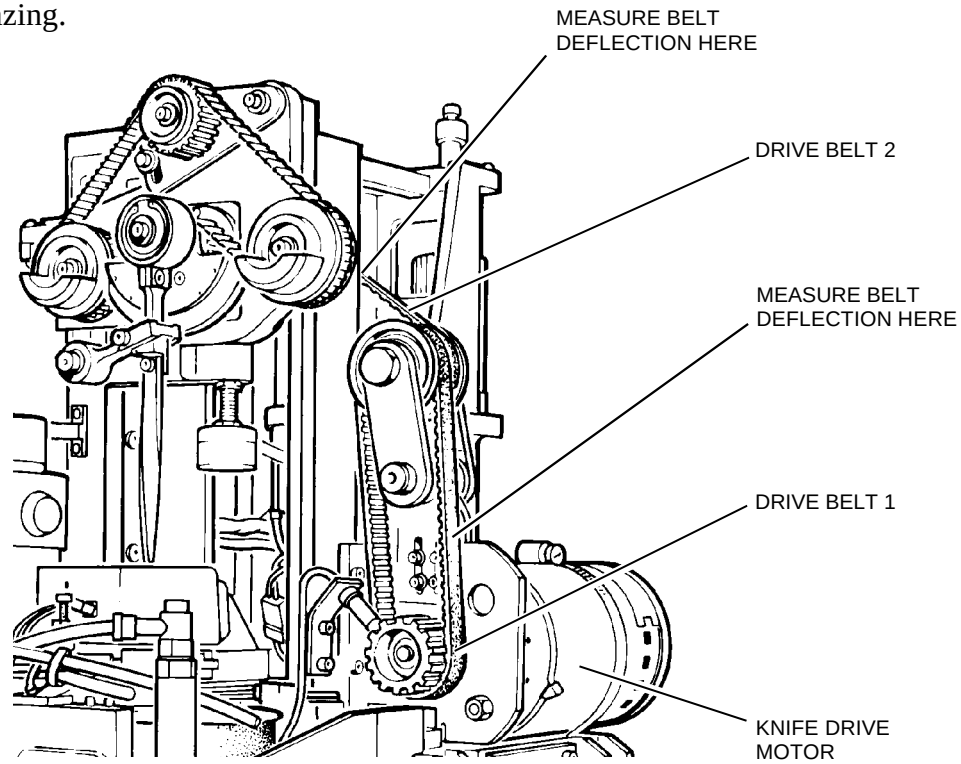
S-7200 Knife Drive Belts. The knife drive belts connect the knife drive motor to the knife crankshaft through a series of pulleys. As the knife drive motor turns, the drive belts transfer its motion to the knife crankshaft. The drive belts must be in good condition and properly tensioned to get the best cutting performance.

Required Tools and Supplies

Item	GGT Part No.
belt deflection gauge	045412000
knife drive belt 1	180500084
knife drive belt 2	180500083
metric right-angle hex key set	945500079
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Check both knife drive belts for cracks, nicks, cuts, and glazing.
4. If you see any of these defects, call your service technician.
5. Measure the tension of belt 1 with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).
6. Measure the tension of belt 2 with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).
7. If either or both belts are tensioned incorrectly, adjust the belt tension of both drive belts.
8. Close the cutter head front cover (page 4-84).
9. Turn on the C-200B controller.



Adjust

1. Turn off the C-200B controller.

2. Open the cutter head front cover (page 4-84).

CAUTION: Drive belts 1 and 2 must be adjusted together in the proper sequence. Doing otherwise can damage the belts and bearings.

3. Adjust drive belt 2

   a. Loosen both locknuts on the belt tensioning arm.

   b. To loosen drive belt 2, shorten the belt adjusting arm by turning the adjusting nut.

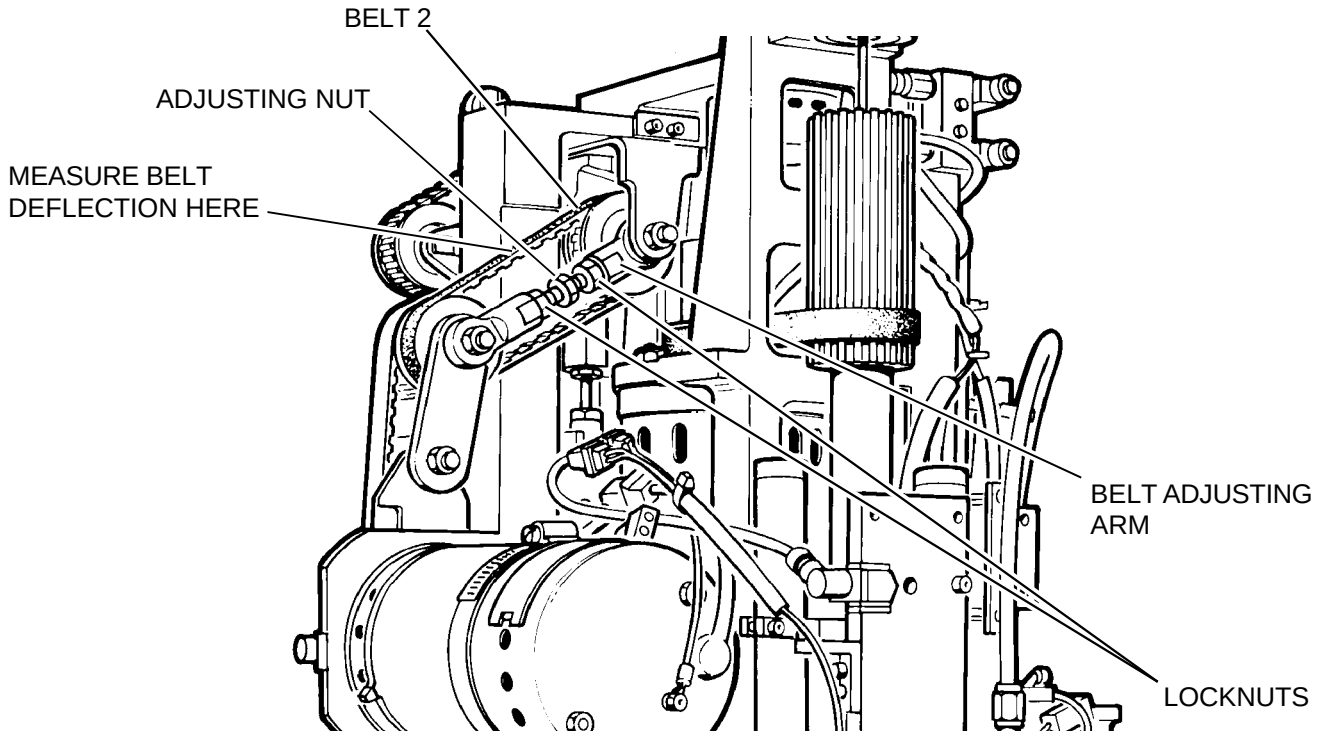
   OR

   c. To tighten drive belt 2, lengthen the belt adjusting arm by turning the adjusting nut.

   d. Tighten both belt adjusting arm locknuts.

   e. Measure the tension of belt 2 with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).

   f. If the belt tension is incorrect, repeat steps 3a. through 3e. until the belt is tensioned correctly.



4. Adjust drive belt 1.

   a. Loosen the four adjusting screws for drive belt 1.

   b. To tighten knife drive belt 1, slide the pulley mounting bracket towards the knife drive motor.

   OR

   c. To loosen knife drive belt 1, slide the pulley mounting bracket away from the knife drive motor.

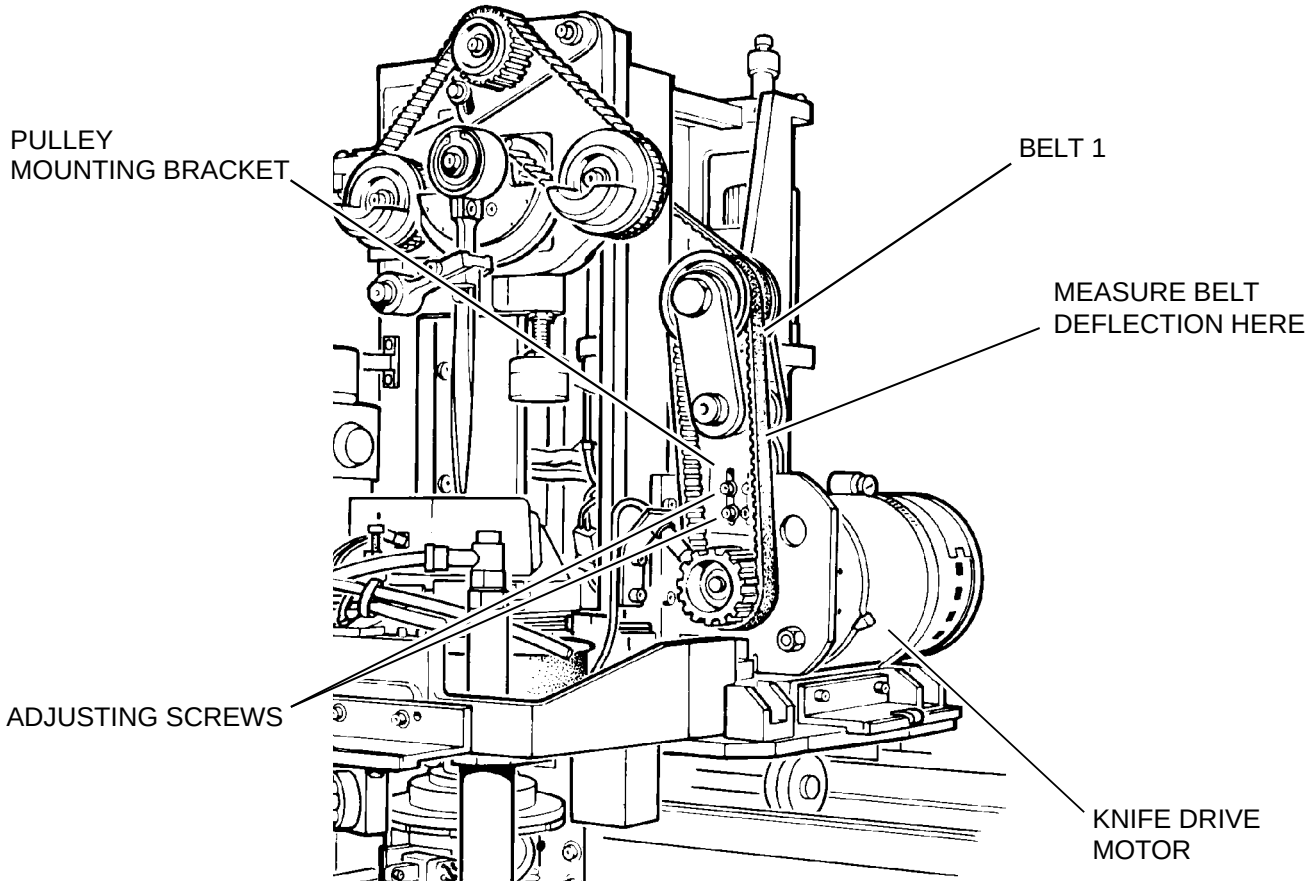
   d. Tighten the four adjusting screws for drive belt 1

   e. Measure belt tension with the belt deflection gauge at the point shown below. The deflection should be 6.35 mm (0.25 in.) at 2.73 to 3.64 kg (6 to 8 lb).

   f. If the belt tension is incorrect, repeat steps 4a. through 4e. until the belt is tensioned correctly.

5. Close the cutter head front cover (page 4-84).

6. Turn on the C-200B controller.



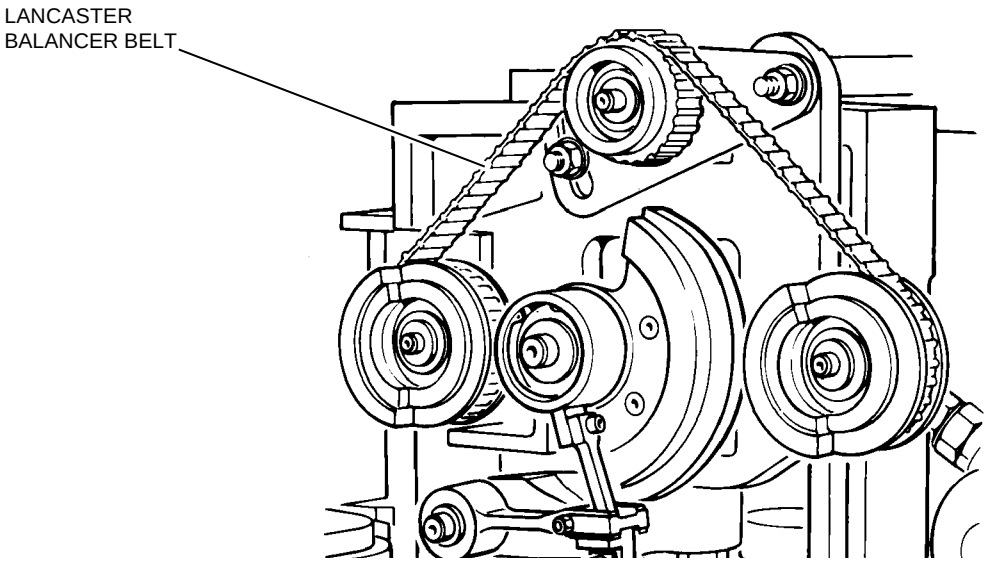
S-7200 Lancaster Balancer. The Lancaster balancer reduces vibration and noise made by the knife drive. As the knife drive motor turns, the Lancaster balancer belt and pulleys also turn. This belt must be in good condition and properly tensioned for the Lancaster balancer to work properly.

Required Tools and Supplies

Item	GGT Part No.
50-lb spring scale	945500252
Lancaster balancer belt	180500090
metric right-angle hex key set	945500079
standard right-angle hex key set	944022402

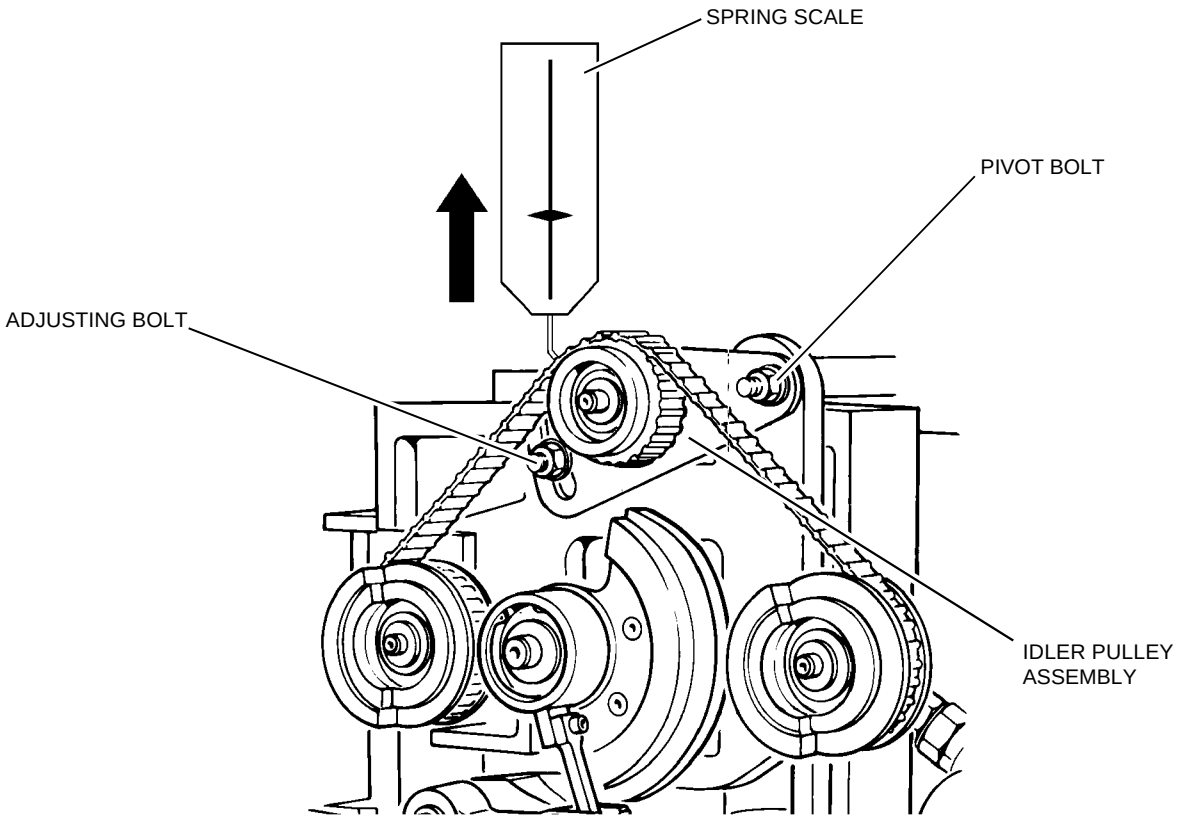
Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Check both sides of the Lancaster balancer belt for cracks, nicks, cuts, and glazing.
4. If you see any of these defects, call your service technician.
5. Visually inspect the belt for proper tension.
6. If the belt is tensioned incorrectly, adjust the belt tension.
7. Close the cutter head front cover (page 4-84).
8. Turn on the C-200B controller.



Adjust

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Loosen the adjusting bolt and the pivot bolt on the idler pulley assembly.
4. Push the idler pulley assembly down to release tension on the Lancaster balancer belt.
5. Hook the end of the spring scale to the adjustable end of the idler pulley assembly.
6. Pull up on the spring scale until it reads 2.27 kg (5 lbs.).
7. Tighten the adjusting bolt and pivot bolt.
8. Close the cutter head front cover (page 4-84).
9. Turn on the C-200B controller.



S-7200 Knife Blade. The knife blade cuts material. It must be sharp and within wear limits to cut properly.

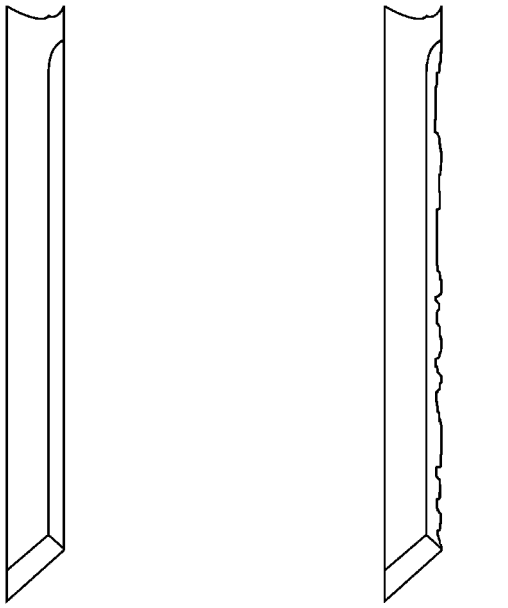
> **WARNING! The knife blade is very sharp. Handle the knife blade carefully. Never hold the knife blade by its sharp end.**

Required Tools and Supplies

Item	GGT Part No.
knife blade (0.93 x 5⁄16 in.)	021261002
metric T-handle hex key set	945500089
Petro-Lon	596500005
screwdriver set	944211601
standard T-handle hex key set	945500051

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Check the knife blade for excessive wear.
4. If the leading edge of the knife blade is damaged or is not straight, replace the knife blade (page 4-98).



OK UNACCEPTABLE

5. Check the knife blade for proper sharpening.

   a. Use a black felt-tip marker to color both sides of the knife blade black.

   b. Close the cutter head front cover (page 4-84).

   c. Turn on the C-200B controller.

   d. Run the C-200B program.

   e. At the **SYSTEM:** prompt, press **F8** to sharpen the knife blade. Sharpen each side of the knife blade five or six times.

   f. Exit the C-200B program.

   g. Turn off the C-200B controller.

   h. Open the cutter head front cover (page 4-84).

   i. Inspect both sides of the knife blade. The pattern of ink on the knife blade shows where the knife blade was sharpened.

NOTE: If the knife blade is sharpened correctly, the grinding wheel removes ink from the leading edge to a width of no less than ⅛ inches.

6. Close the cutter head front cover (page 4-84).

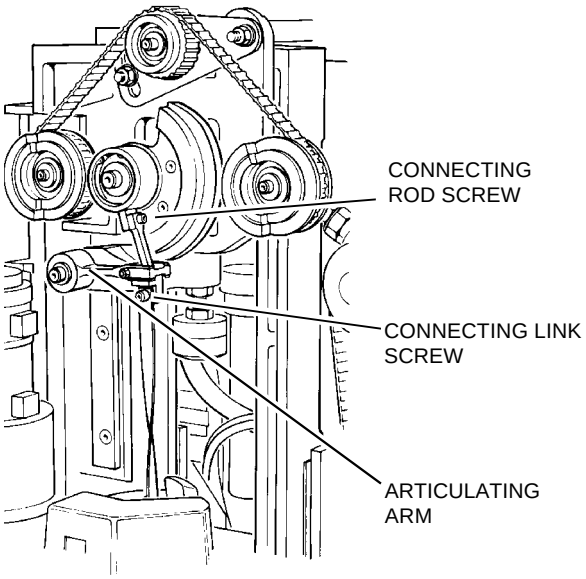
CORRECT SHARPEN ANGLE

Remove

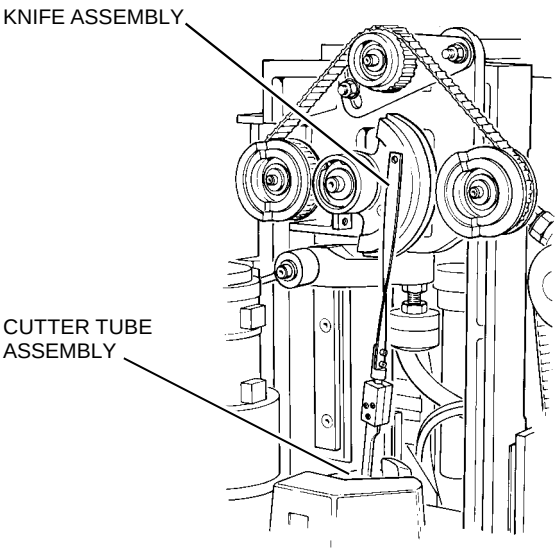
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).

WARNING! The knife blade is very sharp and can cause injury. Handle the knife blade carefully. Never hold the knife blade by its sharp end.

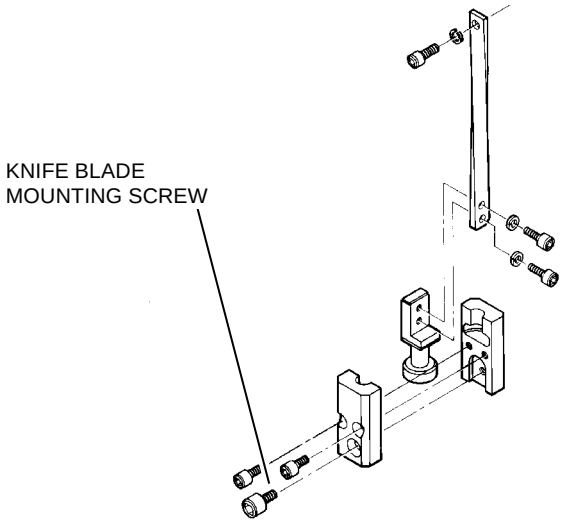
3. Remove the connecting link screw.



4. Remove the connecting rod screw.
5. Push the knife assembly down.
6. Move the articulating arm out of the way.
7. Pull the knife blade assembly up from the cutter tube assembly.



8. Remove the knife blade from the swivel slider assembly.
   a. Remove the knife blade mounting screw.
   b. Pull the knife blade from the swivel slider assembly.

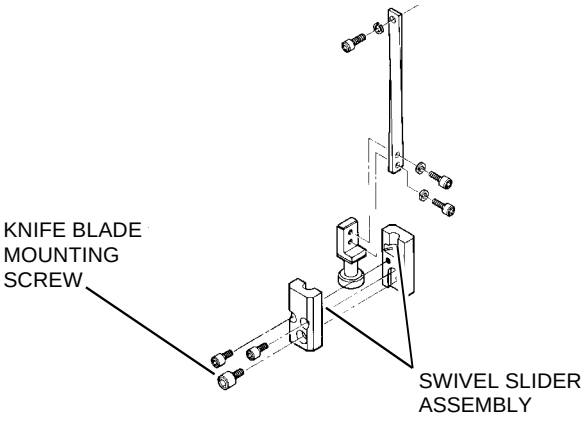


Install

1. Fill the inside of the swivel slider assembly with Petro-Lon. Put enough Petro-Lon into the assembly so that, when you install the knife blade mounting screw, a small amount of Petro-Lon is squeezed out of the assembly.

Note: You can also fill the inside of the swivel assembly after you install the knife blade. To do this, use a grease gun with a needle fitting to put Petro-Lon into the greasing hole in the swivel. Stop adding Petro-Lon as soon as the Petro-Lon starts to leak out of the assembly.

2. Put the knife blade into the swivel slider assembly.

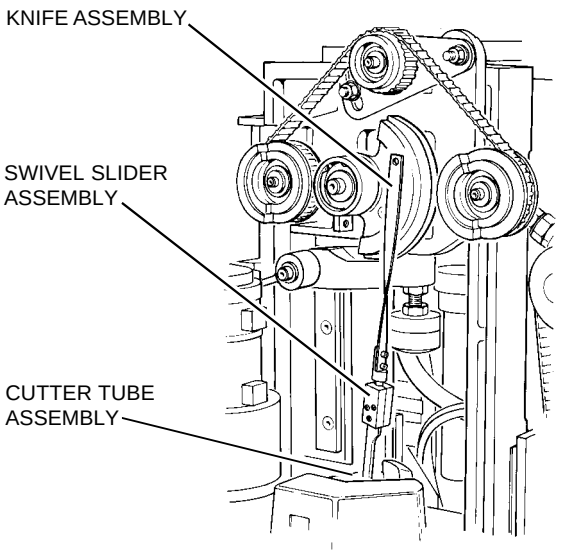


3. Install the knife blade mounting screw.

NOTE: The hole in the knife blade for the mounting screw is offset. You can only mount the knife blade one way.

4. Put a thin (1 mm or 0.040 in.) coat of Petro-Lon onto the outside of the swivel slider assembly.

5. Insert the knife assembly into the cutter tube assembly. Make sure the knife is straight.



6. Align the screw hole in the connecting rod with the screw hole in the block and bushing assembly.

7. Install the connecting rod screw.

8. Align the screw hole in the connecting link with the screw hole in the block and bushing assembly.

9. Install the connecting link screw.

10. Put Petro-Lon into the working surface of the articulating arm. Put in enough Petro-Lon to fill all the space in the arm. Do not overfill the arm so that Petro-Lon is squeezed onto the outside of the articulating arm.

11. Close the cutter head front cover (page 4-84).

12. Turn on the C-200B controller.

13. Check knife operation.

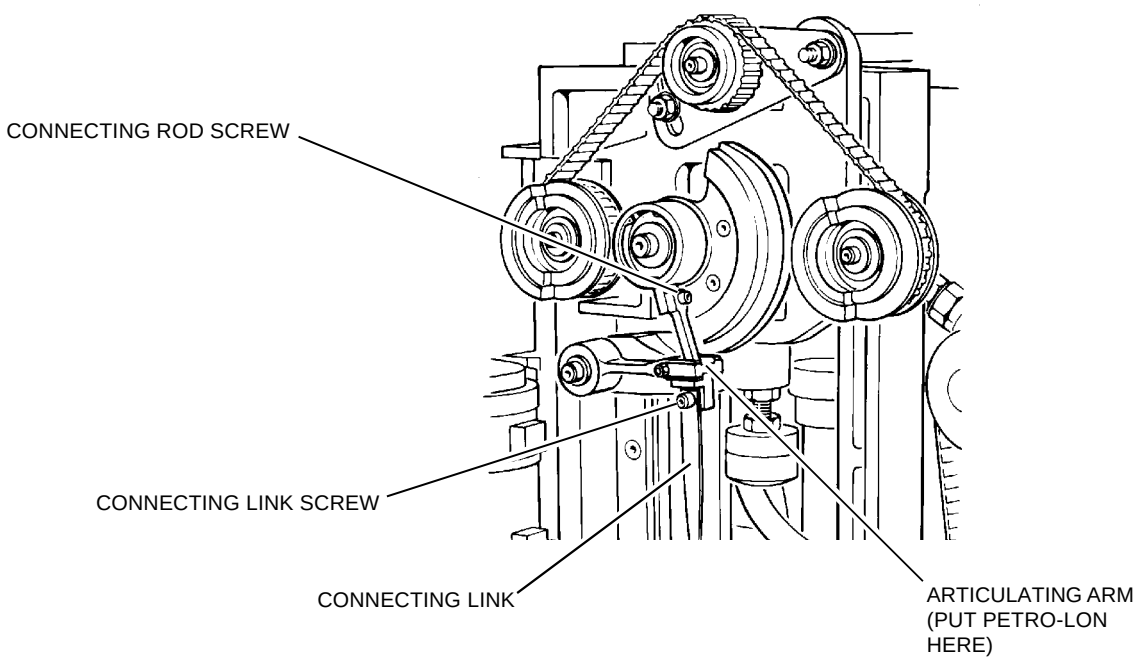
    a. At the BCP, set **KNIFE** to **ON**.

    b. Check that the knife moves smoothly and with no unusual noise.

    c. At the BCP, set **KNIFE** to **OFF**.

14. Use the New Knife command to reset knife wear logic.

15. Sharpen the knife blade several times to check the position of the knife blade.



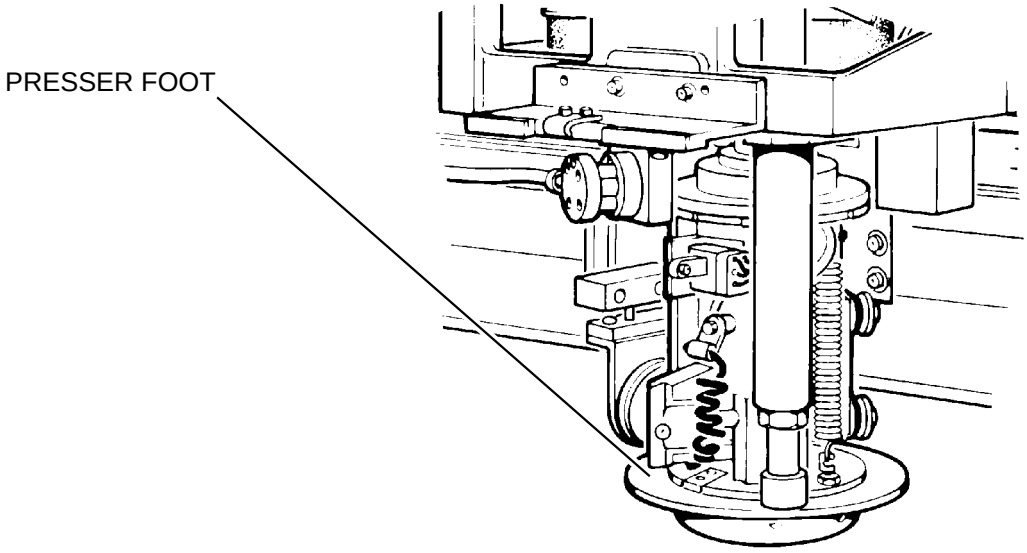
S-7200 Presser Foot. The presser foot flattens the top of the lay as the knife blade cuts it.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
grease gun	944233101
metric right-angle hex key set	945500079
Mobil 1 5W-30 synthetic oil	120050209
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Check the presser foot shafts for dirt and debris. Clean them if needed.
4. Check the shafts for bends, nicks, and gouges. If you find any of these defects, call your service technician.
5. Check the knife intelligence wire for any breaks, nicks, and gouges. If you find any of these defects, call your service technician.
6. Check the presser foot for binding.
   a. At the operator workstation, decrease the presser foot bowl pressure to 0 kgf/cm^2 (0 psi).
   b. Slide the presser foot straight down. It should move smoothly without binding. Binding indicates a problem with the shafts and/or alignment of the lower blade guide.
   c. If you notice any binding, call your service technician.
   d. At the operator workstation, restore the presser foot bowl pressure to its original level.
7. Close the cutter head front cover (page 4-84).
8. Turn on the C-200B controller.



Clean/Lubricate

1. Turn off the C-200B controller.

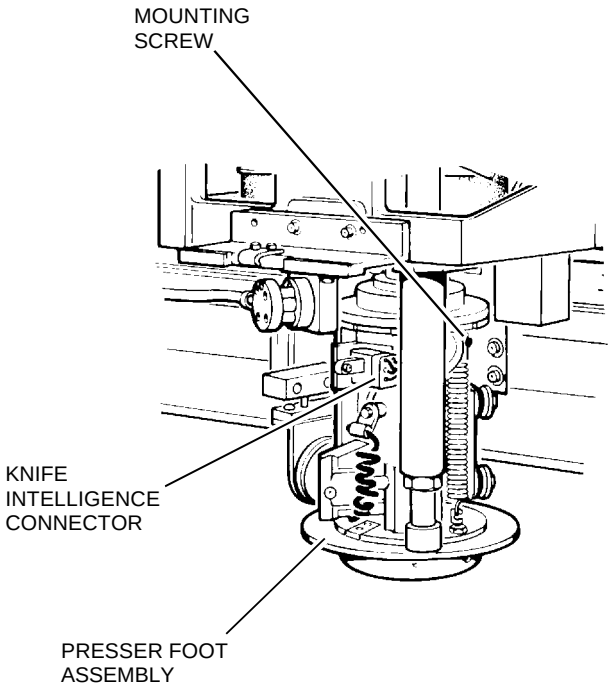
2. Open the cutter head front cover (page 4-84).

3. Use a grease gun to lubricate the linear bearing on the shaft.

CAUTION: Excess oil is thrown onto fabric and damages it. Use as little oil as possible. It is better to lubricate lightly and more frequently, than to apply one heavy coat.

4. Remove the knife assembly (page 4-98).

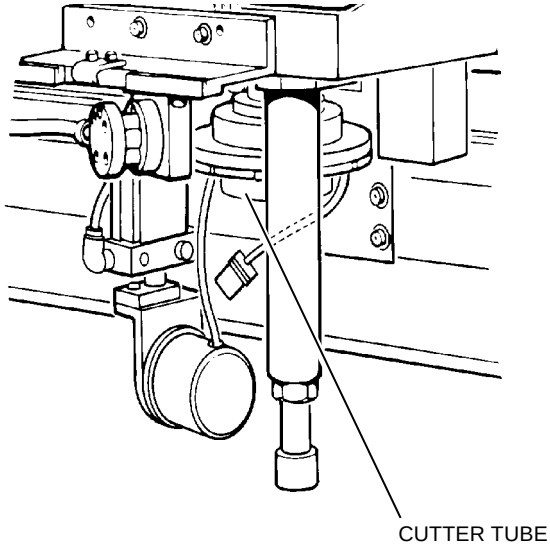
5. Unplug the Knife Intelligence sensor.



6. Loosen the mounting screw that holds the sharpener assembly on the cutter tube.

7. Lower the presser foot assembly and remove it from the cutter head.

8. Use a clean rag dampened with denatured alcohol to clean the inside of the cutter tube.

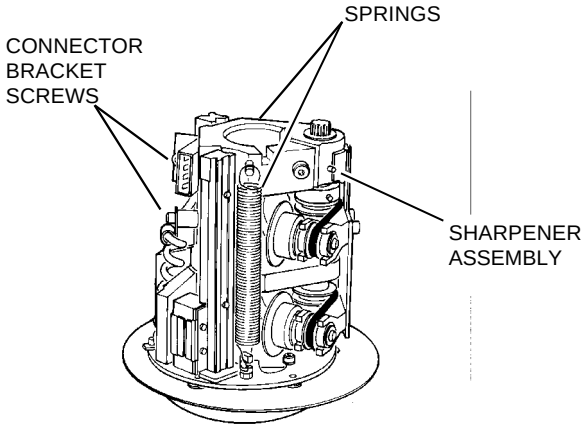


9. Remove both Knife Intelligence connector bracket screws from the presser foot assembly.

CAUTION: Do not remove the linear bearings. If you do, you may lose them.

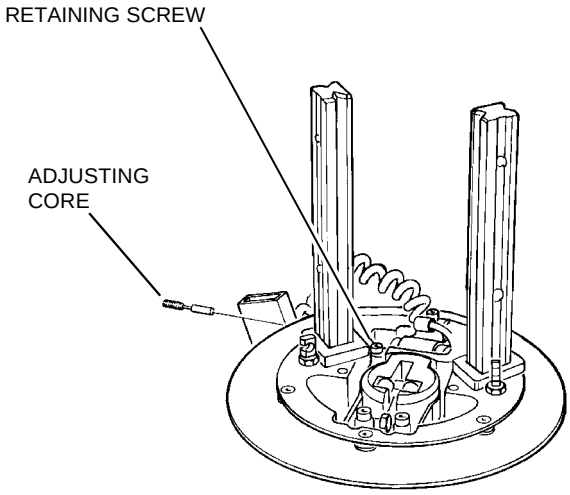
10. Remove the two springs.

11. Lift the sharpener assembly off the presser foot assembly.



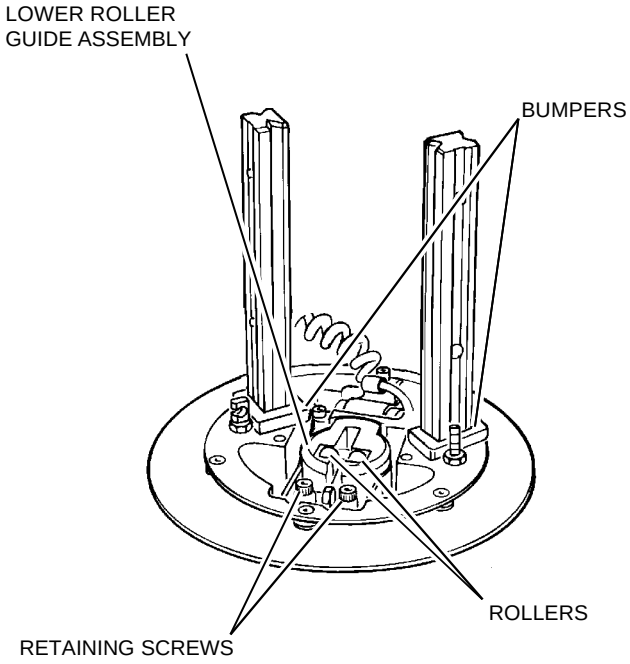
12. Loosen the retaining screw for the adjusting core.

13. Remove the adjusting core.



14. Remove the retaining screws for the lower roller guide assembly.

15. Lift out the lower roller guide assembly.



16. Dampen a lint-free clean cloth with denatured alcohol and clean the lower roller guide assembly.

17. Let the lower roller guide assembly dry completely.

18. Inspect the bumpers for wear and damage. If they are worn or damaged, call your service technician.

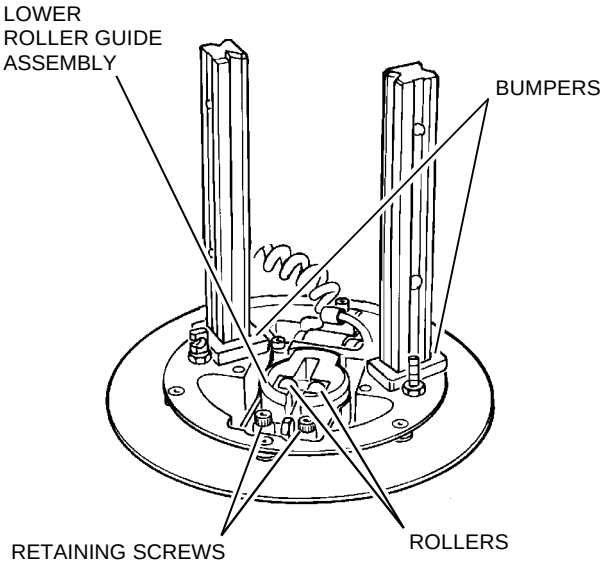
19. Inspect the rollers in the lower guide for wear and damage. Make sure that these rollers can spin freely. If they are worn or damaged, or do not spin easily, call your service technician.

CAUTION: **Excess oil is thrown onto fabric and damages it. Use as little oil as possible. It is better to lubricate lightly and more frequently, than to apply one heavy coat.**

CAUTION: **Only use synthetic oil. Non-synthetic oil can damage seals and bearings.**

20. Lubricate the pins of the rollers with a drop of Mobil 1 synthetic oil.

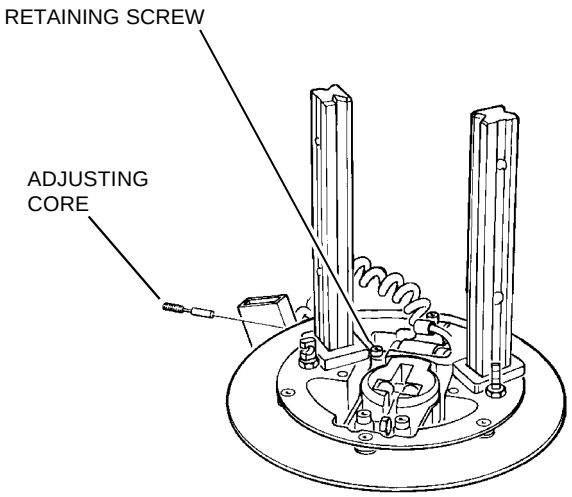
21. Put the lower roller guide assembly into the presser foot assembly.



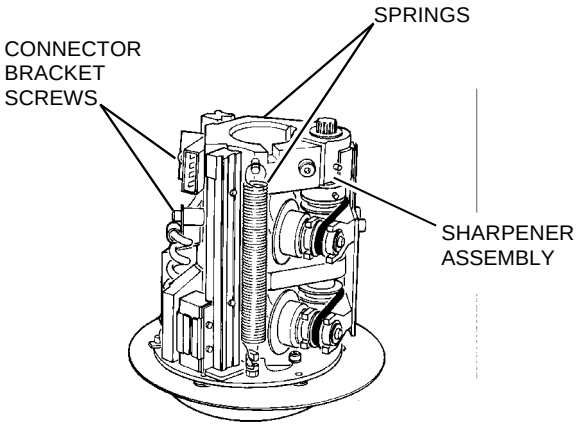
22. Install the retaining screws for the lower roller guide assembly.

23. Install the adjusting core.

24. Install the retaining screws for the adjusting core.



25. Put the sharpener assembly into the presser foot assembly.



26. Install the Knife Intelligence connector bracket screws.

27. Install the presser foot assembly into the cutter head.

28. Tighten the mounting screw that holds the presser foot assembly on the cutter tube.

29. Plug in the Knife Intelligence sensor.

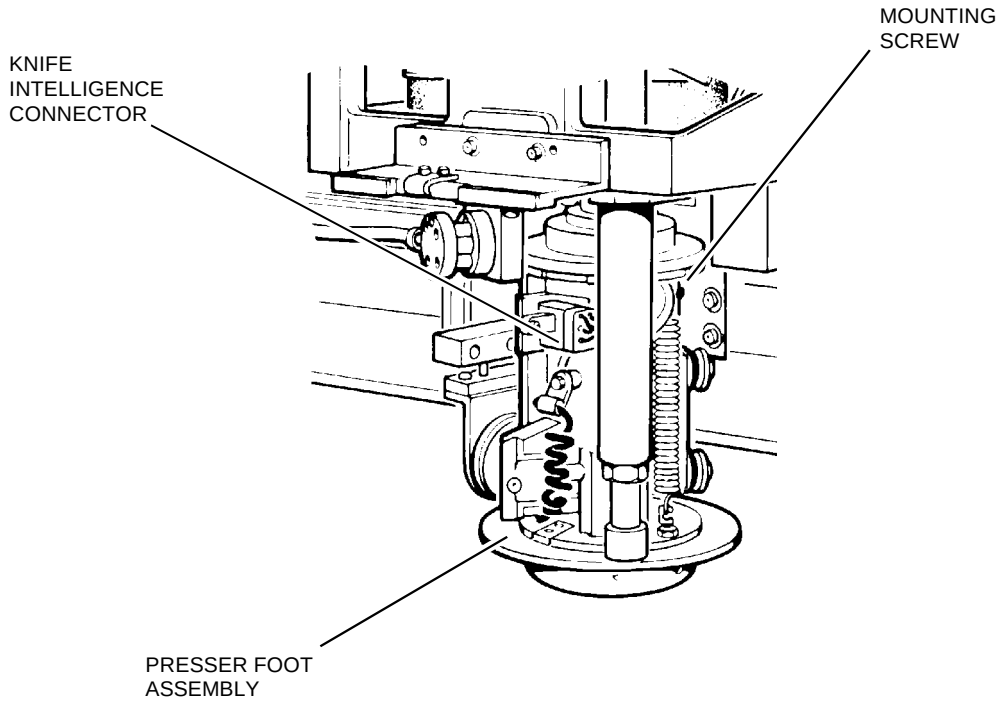
30. Install the knife blade (page 4-99).

31. Close the cutter head front cover (page 4-84).

32. Turn on the C-200B controller.

33. Run the C-200B software.

34. Run the transducer alignment diagnostic. See the *C-200B Software User's Guide* or release notes for more information about this procedure.



S-7200 Grinding Pulley Drive Belts.

The grinding pulley drive belts connect the sharpener motor to the grinding pulleys. These belts must be in good condition for the sharpener to work properly.

Required Tools and Supplies

Item	GGT Part No.
cleaning solvent	308010101
grinding pulley drive belt (O-ring)	496500207
metric T-handle hex key set	945500089
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.

2. Open the cutter head front cover (page 4-84).

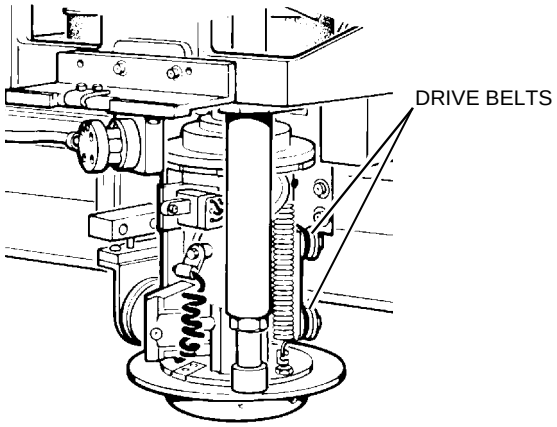
3. Check both drive belts for nicks and cuts. Replace a drive belt if it has any of these defects.

CAUTION: Do not use solvents on the drive belts. Solvents will damage the drive belts.

4. Make sure that there is no lubricant, oil, or grease on the drive belts. Replace a drive belt if it has a lubricant on it.

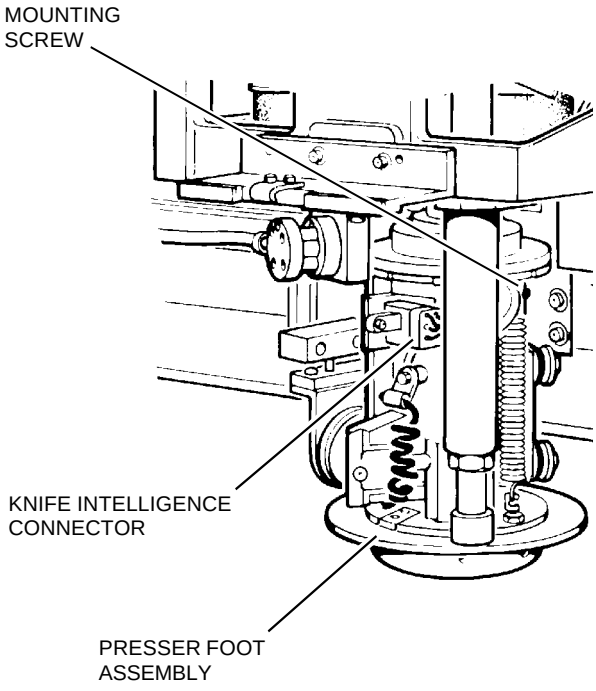
5. Close the cutter head front cover (page 4-84).

6. Turn on the C-200B controller.

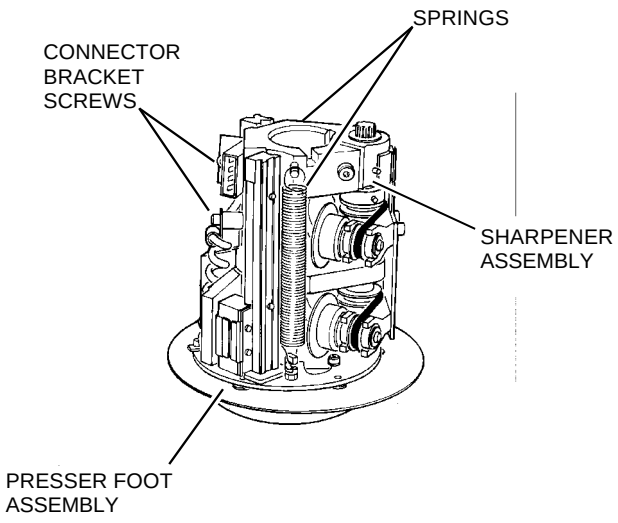


Remove

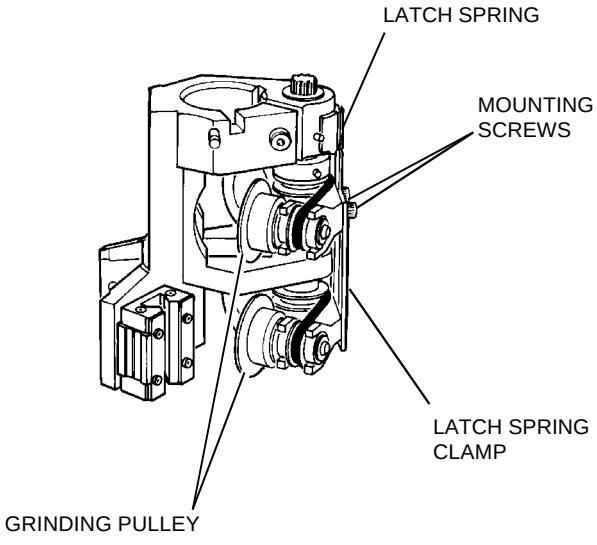
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Remove the knife assembly (page 4-98).
4. Unplug the Knife Intelligence sensor.
5. Remove the two springs from the presser foot assembly.
6. Loosen the screw that holds the presser foot assembly on the cutter tube.
7. Lower the presser foot assembly and remove it from the cutter head.



8. Remove both Knife Intelligence connector bracket screws from the presser foot assembly.
9. Lift the sharpener assembly off the presser foot assembly.

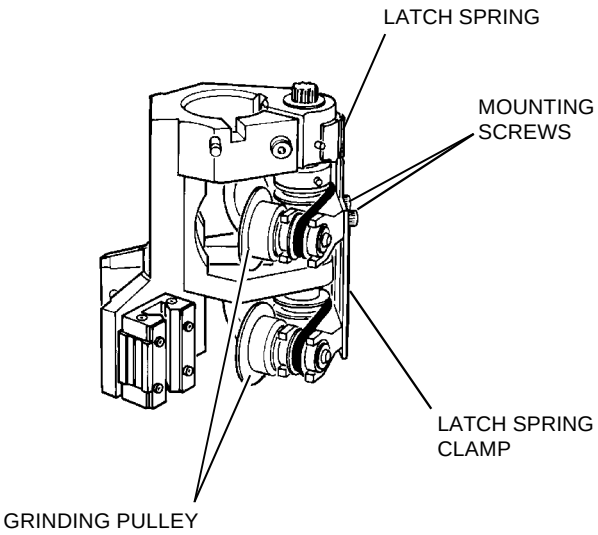


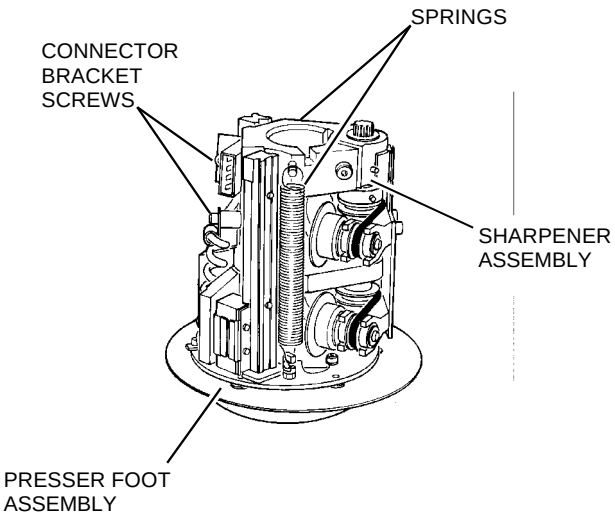
10. Remove the two screws that mount the latch spring clamp to the sharpener assembly.
11. Remove the latch spring clamp.
12. Remove the latch spring.
13. Gently stretch each drive belt and slip it off the grinding pulleys.



Install

1. Slip each drive belt onto the grinding pulleys.
2. Install the latch spring.
3. Install the latch spring clamp. Align the screw holes with the holes in the sharpener assembly.
4. Install the two screws that mount the latch spring clamp to the sharpener assembly.
5. Place the sharpener assembly onto the presser foot assembly.
6. Install the two springs on the presser foot assembly.
7. Install the Knife Intelligence connector bracket screws.





8. Install the presser foot assembly into the cutter head.

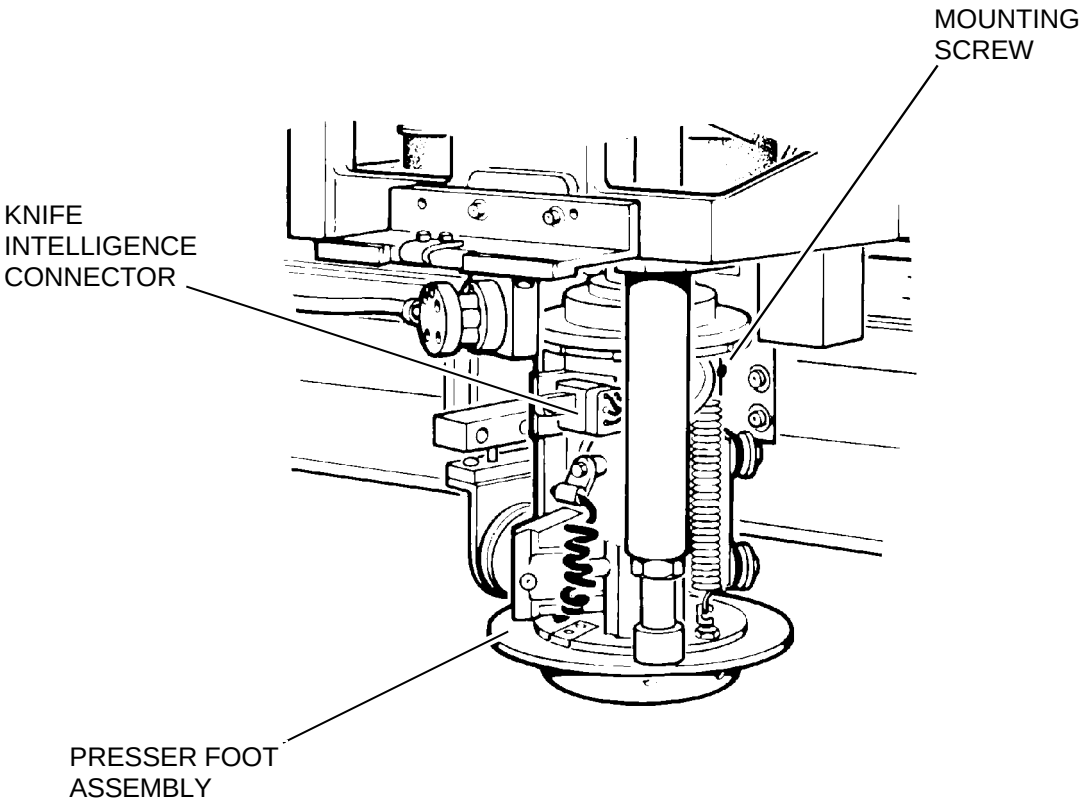
9. Tighten the screw that holds the presser foot assembly on the cutter tube.

10. Plug in the Knife Intelligence Sensor.

11. Install the knife blade (page 4-99).

12. Close the cutter head front cover (page 4-84).

13. Turn on the C-200B controller.



S-7200 Grinding Pulley. A grinding pulley is a grit-covered metal wheel that sharpens the knife blade. Grinding pulley condition affects sharpening which, in turn, affects cutting performance.

Required Tools and Supplies

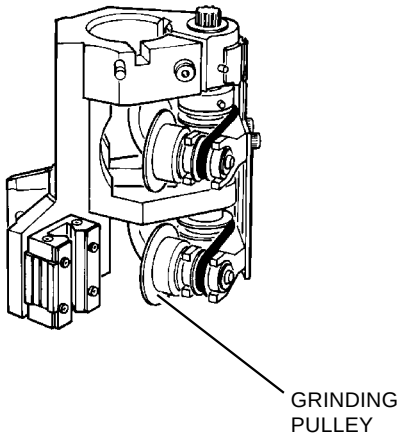
Item	GGT Part No.
cleaning solvent	308010101
grinding pulley 80 grit	020505000
small brass brush	N/A

Inspect

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Inspect the grinding pulleys for missing grit, debris, and chips. Replace or clean the grinding pulleys, as needed.
4. Close the cutter head front cover (page 4-84).
5. Turn on the C-200B controller.

Remove

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Remove the knife blade (page 4-98).
4. Remove the grinding pulley drive belts (page 4-107).
5. Slide the four grinding pulleys from their supports.



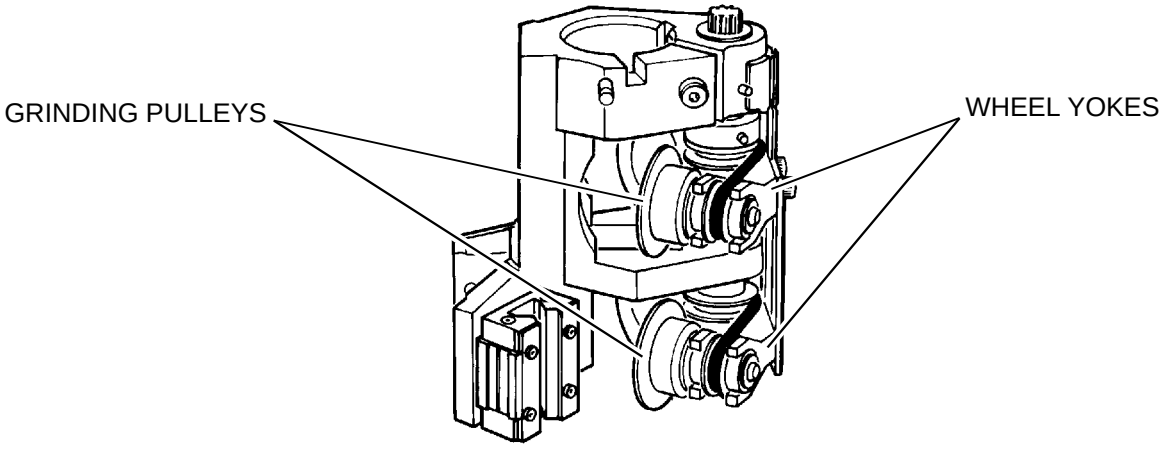
Clean

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Remove the knife blade (page 4-98).
4. Remove the grinding pulley drive belts (page 4-107).
5. Remove the grinding pulleys (page 4-110).

WARNING! Cleaning solvent is flammable. If it ignites, it may cause injury or death. Do not smoke or have other ignition sources near the solvent.

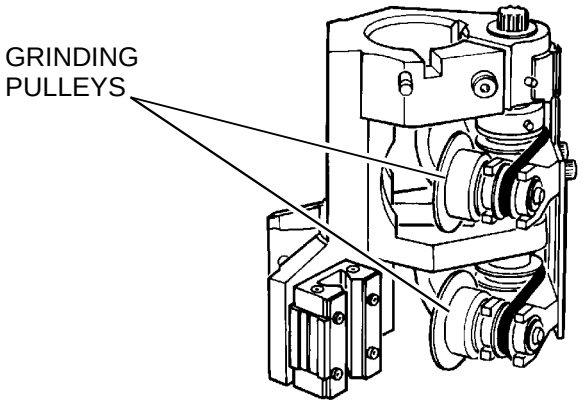
CAUTION: Do not get any cleaning solvent on any bearings or drive belts because it will damage them.

6. Spray the grinding pulley thoroughly with cleaning solvent.
7. Using a stiff, brass brush, scrub the grinding pulley until you remove all deposits.
8. Air dry the grinding pulley until all solvent is gone.
9. Install the grinding pulley.
10. Check the wheel yokes for wear by trying to move them with your hand. If you can move the yokes easily, they are worn. Call your service technician if the yokes are worn.



Install

1. Slide the four grinding pulleys into their supports.
2. Install the grinding pulley drive belts (page 4-108).
3. Install the knife assembly (page 4-99).
4. Close the cutter head front cover (page 4-84).
5. Turn on the C-200B controller.



S-7200 Elevator Flatway

The elevator flatway is a shaft on which the elevator rides up and down. As the elevator moves, it plunges and raises the knife.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
grease gun	944233101
Petro-Lon	596500005

Inspect

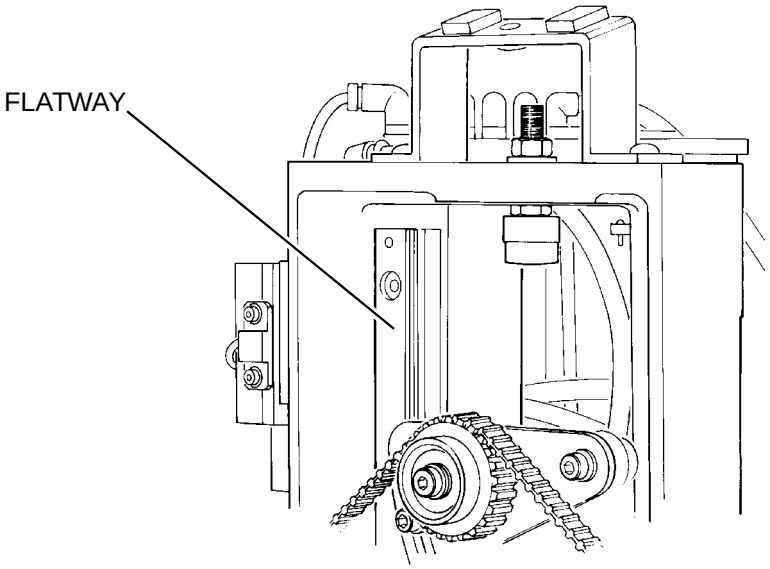
1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Inspect the roundways for dirt and lint build-up. Clean and lubricate them, if necessary.
4. Inspect the flatway for scratches, nicks, and gouges. These defects show problems with the flatway bearings. If you see any of these problems, call your service technician.
5. Close the cutter head front cover (page 4-84).
6. Turn on the C-200B controller.

Clean/Lubricate

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).

CAUTION: **Excess lubricant can get onto fabric and damage it. After you fill the grease fitting, wipe excess lubricant from around the grease fitting.**

3. Use a grease gun to lubricate the grease fitting in the bearing on the flatway. Lubricate the bearing with Petro-Lon.
4. Close the cutter head front cover (page 4-84).
5. Turn on the C-200B controller.



S-7200 Up/Down Stops

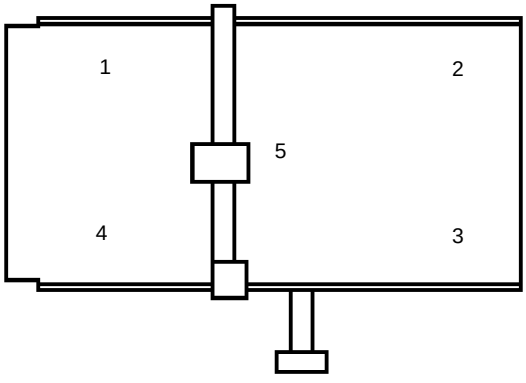
The up/down stops control the depth of knife cuts. If the down stop is set low, the knife cuts off the bristles in the BRISTLE SQUARES. If the down stop is set high, the knife does not cut bottom plies cleanly. Improper setting of the up stop causes poor sharpening.

Required Tools and Supplies

Item	GGT Part No.
metric combination wrench set	945500093
screwdriver set	944211601
standard combination wrench set	944002401

Inspect

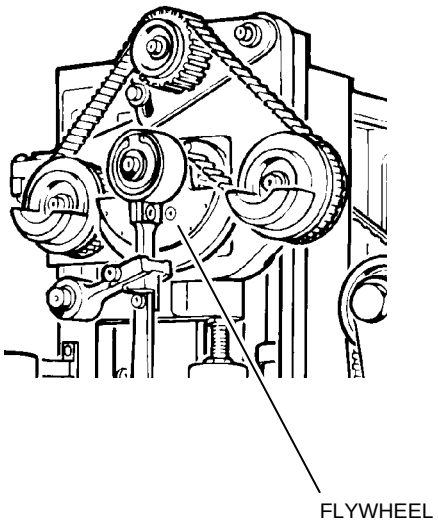
1. Turn on the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Cover the work surface with paper and plastic film from the sealer.
4. You must check the knife penetration at five points on the cutting surface. Move the cutter head to test point 1 on the work surface. Test points 1 through 4 are about 30.5 cm (1 ft) from each corner. Test point 5 is at the center of the work surface.



5. Plunge the knife and presser foot bowl in the following manner:
   a. At the BCP, turn on the **KNIFE** switch.
   b. At the **SYSTEM:** prompt, type **C200B**, then press **ENTER**.
   c. The monitor will display the following message:

      Enable SERVO POWER or press:
      D for Diagnostic Menu
      M for Download Menu
      Escape to ABORT...

   d. Type **D**.
   e. Press **ENTER**.
6. Move the flywheel to top-dead-center.



a. Press the **SPACE** bar.

b. Press **ENTER** to select:

23 - IO Diagnostic

The monitor displays the DG 23 menu.

c. Use the arrow keys to highlight **Vacuum Enbl**.

d. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This turns on table vacuum.

e. Use the arrow keys to highlight **Knife Sol**.

f. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This plunges the knife and the presser foot bowl. Note that the number in the KNIFE SOL line changes from 1 to 0.

NOTE: Make a note of the air pressure reading on the presser foot air gauge on the C-200B controller. You will need to reset the regulator to that pressure when you are through with this procedure.

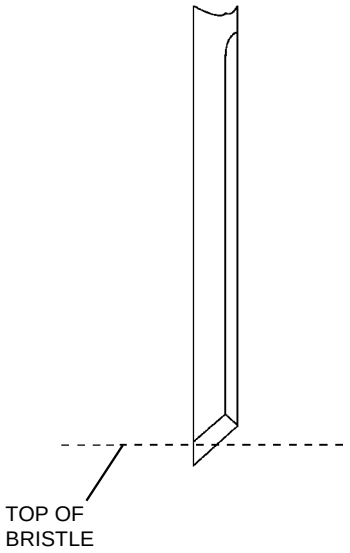
g. Turn off air to the presser foot bowl by releasing pressure at the regulator on the C-200B controller. Do this by turning the regulator counterclockwise. You can now manually raise the presser foot bowl to see the knife.

7. Check the down stop setting as follows:

a. With a pencil, mark the knife blade at the point it enters the plastic sealer.

b. On the C-200B controller, hold down the **CTRL** key and press the **SPACE** bar. The knife rises.

c. The pencil line should be 1.6 to 3.2 mm ($\frac{1}{16}$ to $\frac{1}{8}$ inches) above the tip of the knife blade.



d. Turn on air to the presser foot bowl by returning pressure at the regulator on the C-200B controller. Do this by turning the regulator clockwise.

8. Use the **JOYSTICK** to move the cutter head to the next test point and repeat steps 5. through 8. for test points 2. through 5. If needed, adjust the down stop.

9. On the BCP, press **VAC** to turn off table vacuum.

10. Press **Esc**. The monitor displays:

Enable SERVO POWER or press:
D for Diagnostic Menu
M for Download Menu
Escape to ABORT...

11. Press **Esc** to return to the **SYSTEM:** prompt.

12. Check the up stop setting.

    a. Position the clevis at top dead center.

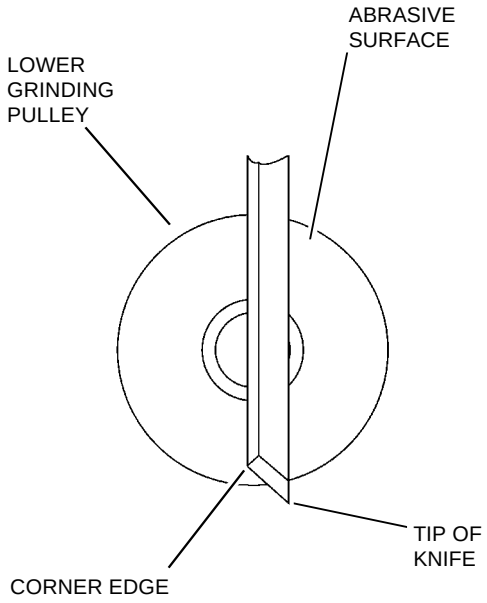
    b. Check the knife blade. The corner edge of the knife blade should be in the center of the abrasive surface of the lower grinding pulley.

    c. Adjust the up stop, if necessary.

13. Exit the C-200B program.

14. Turn off the C-200B controller.

15. Close the cutter head front cover (page 4-84).



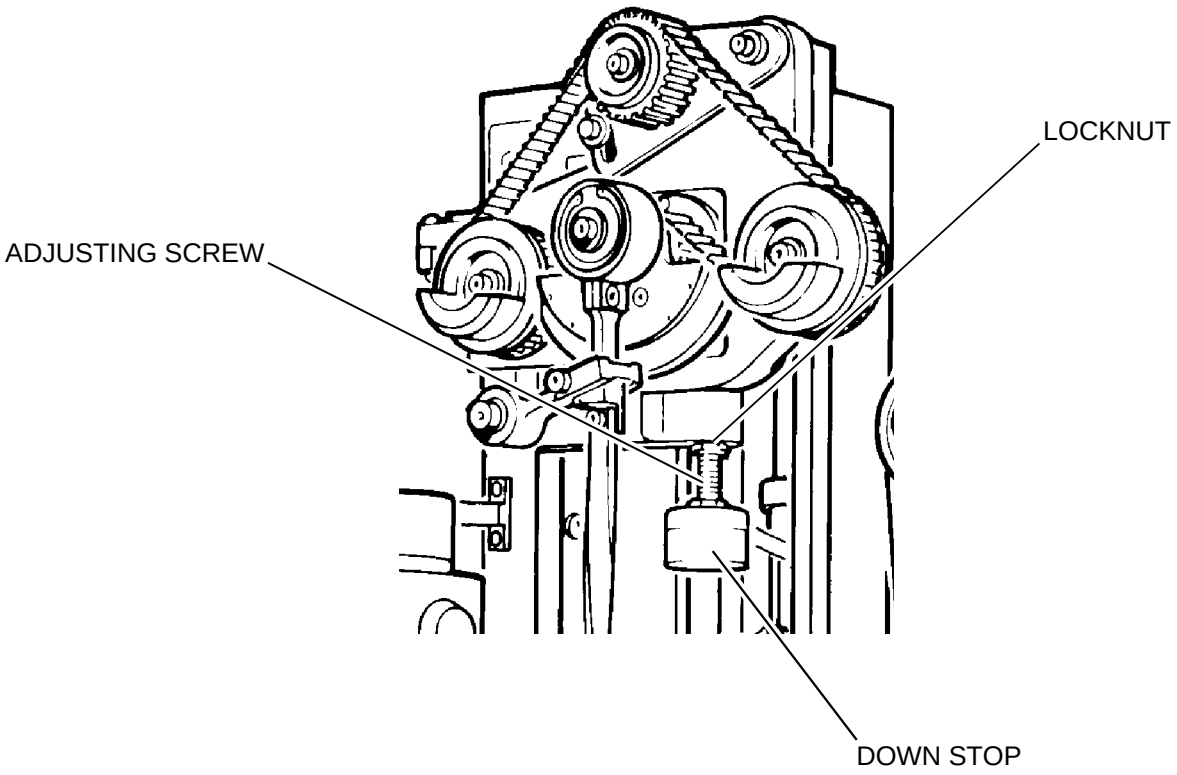
Adjust

If you find during the up and down stop checks (described on the pages 4-114 through 4-116) that you need to adjust the head up/down stops, follow this procedure:

CAUTION: Too much penetration damages the work surface, too little keeps pieces from being cut completely.

NOTE: Because of tolerances, bristle penetration usually cannot be set to the same value for each test point. However, all test points must be within the proper range.

1. Turn off the C-200B controller.
2. Open the cutter head front cover (page 4-84).
3. Adjust the down stop:
   a. Loosen the locknut on the adjusting screw by turning it counterclockwise.
   b. Turn the adjusting screw clockwise or counterclockwise to change the depth of bristle penetration.
   c. Inspect the up/down stop settings as described on page 4-114 through 4-116.
   d. Tighten the locknut by turning it clockwise.
   e. Repeat steps a. through d. until bristle penetration is set correctly.



4. Adjust the up stop.

    a. Loosen the lock nut on the adjusting screw by turning it counterclockwise.

    b. Put a hex key into the adjusting screw. Turn the adjusting screw clockwise or counterclockwise to change the up stop setting.

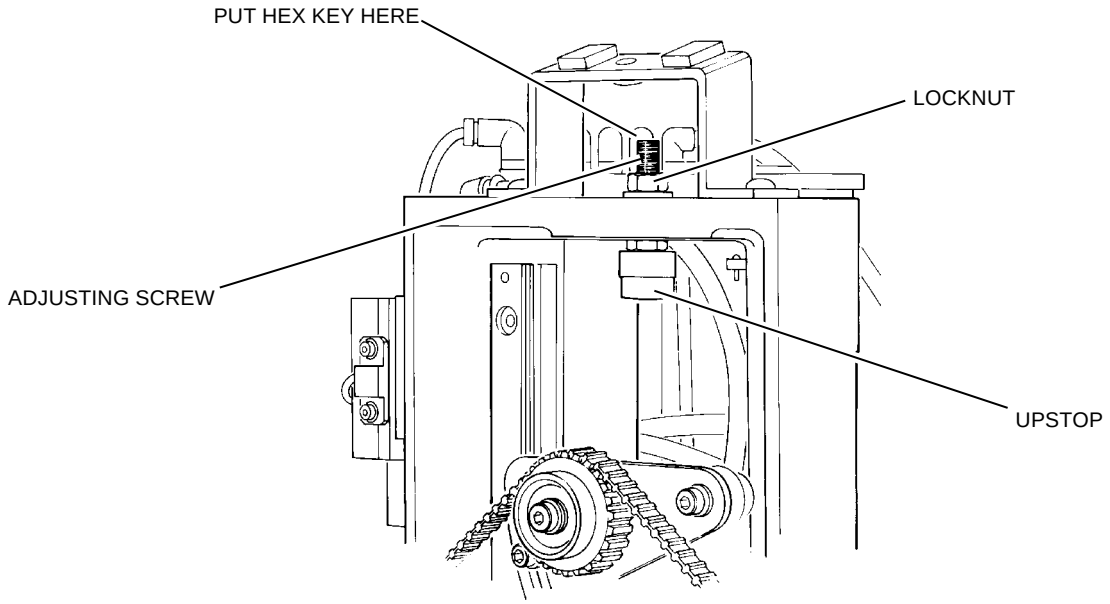
    c. Inspect the up/down stop settings as described on page 4-114 through 4-116.

    d. Tighten the lock nut by turning it clockwise.

    e. Repeat steps a through d until the up stop is set correctly.

5. Close the cutter head front cover (page 4-84).

6. Turn on the C-200B controller.



S-7200 Drill

The drill attaches to the cutter head. It lets the GERBERcutter automatically make drill hole marks as it cuts the material.

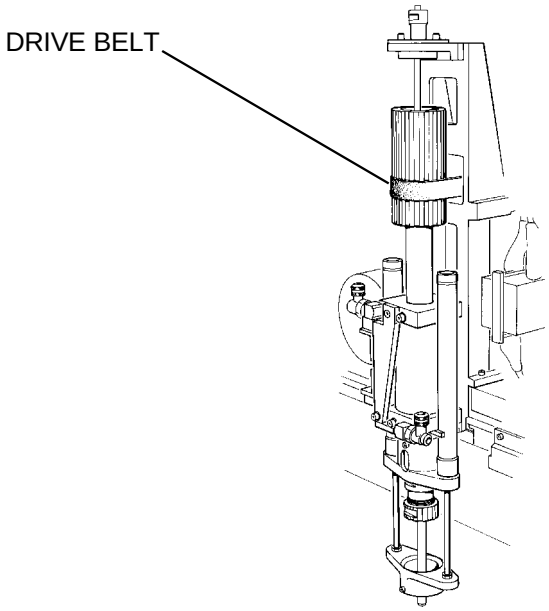
S-7200 Drill Drive Belt. The drive belt connects the drill to the drill motor.

Required Tools and Supplies

Item	GGT Part No.
belt deflection gauge	045412000
metric combination wrench set	945500093
metric right-angle hex key set	945500079
pliers	944003903
standard combination wrench set	944002401
standard right-angle hex key set	944022402

Inspect

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-85).
3. Remove the cutter head back cover (page 4-86).
4. Check the drive belt for glazing, cuts, and nicks. Replace it, if necessary.
5. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. Adjust the drive belt, if necessary.
6. Install the cutter head back cover (page 4-86).
7. Install the cutter head front cover (page 4-85).
8. Turn on the C-200B controller.

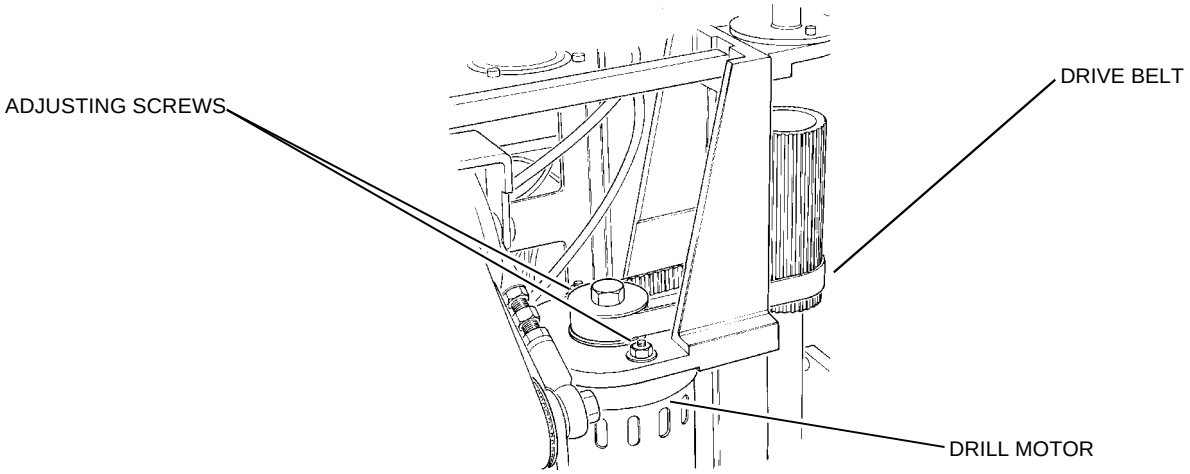


Remove

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-85).
3. Remove the cutter head back cover (page 4-86).
4. Remove the drill bit and ejector rod (page 4-122).
5. Loosen the adjusting screws.
6. Slide the drill motor toward the drill.
7. Slide the drive belt off the pulleys.

Install

1. Slide the drive belt onto the pulleys.
2. Slide the drill motor to apply the correct tension to the drive belt.
3. Tighten the adjusting screws.
4. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. If the tension is not correct, loosen the adjusting screws and repeat steps 2. through 4. until the deflection is correct.
5. Install the drill bit and ejector rod (page 4-122).
6. Install the cutter head back cover (page 4-86).
7. Install the cutter head front cover (page 4-85).
8. Turn on the C-200B controller.

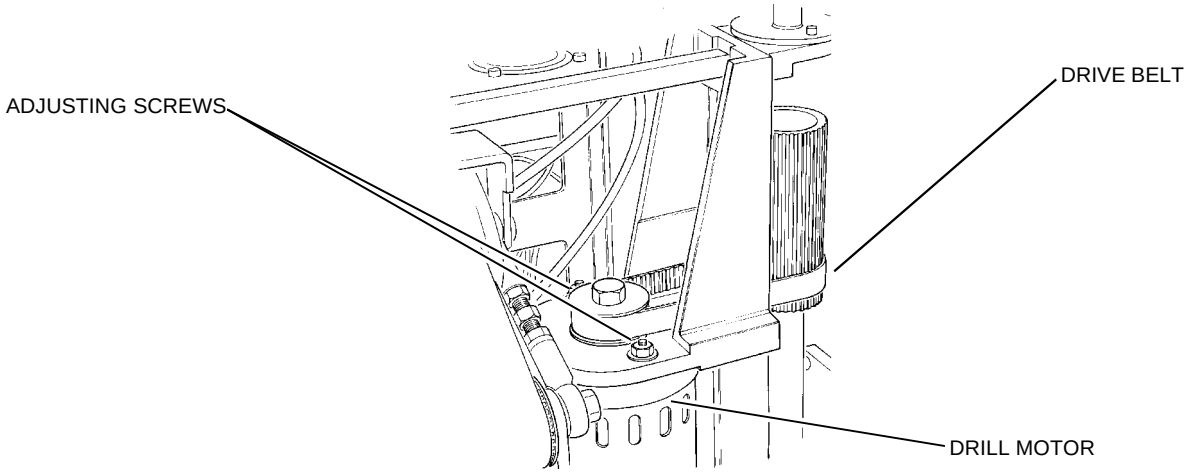


Adjust

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-85).
3. Remove the cutter head back cover (page 4-86).
4. Loosen the drill motor adjusting screws.
5. Slide the drill motor toward the drill to loosen the drive belt.

   OR

6. Slide the drill motor away from the drill to tighten the drive belt.
7. Tighten the adjusting screws.
8. Check the drive belt for proper tension.
   a. Measure the deflection of the drive belt midway between the drill motor pulley and the drill pulley. The belt deflection should be 6.35 mm (0.25 in.) at 0.91 to 1.82 kg (2 to 4 lb).
   b. Repeat steps 3. through 6. until the drill drive belt tension is correct.
9. Install the cutter head back cover (page 4-86).
10. Install the cutter head front cover (page 4-85).
11. Turn on the C-200B controller.



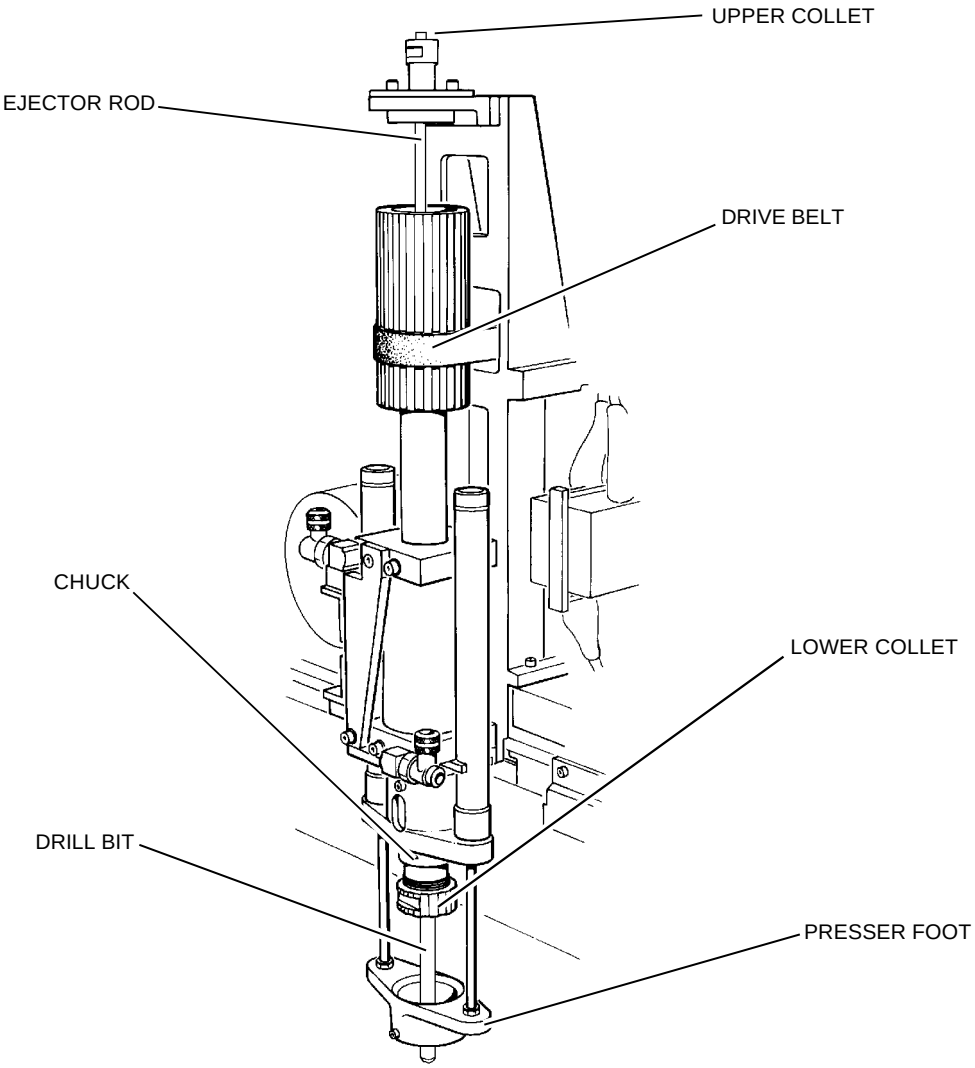
S-7200 Drill Bit. The drill bit is the part of the drill that cuts holes in the material. Drill bits are available in a variety of sizes and types.

Required Tools and Supplies

Item	GGT Part No.
drill bits, ejector rods, collets	see Tables 4-4 and 4-5
standard combination wrench set	944002401

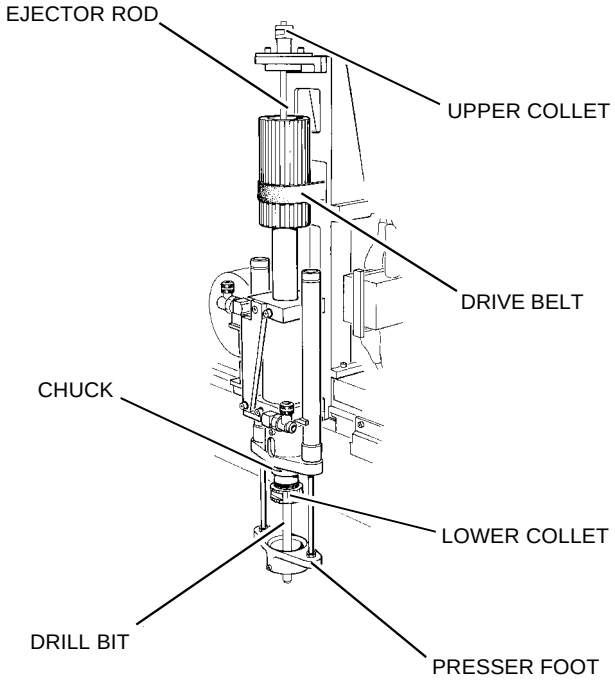
Inspect

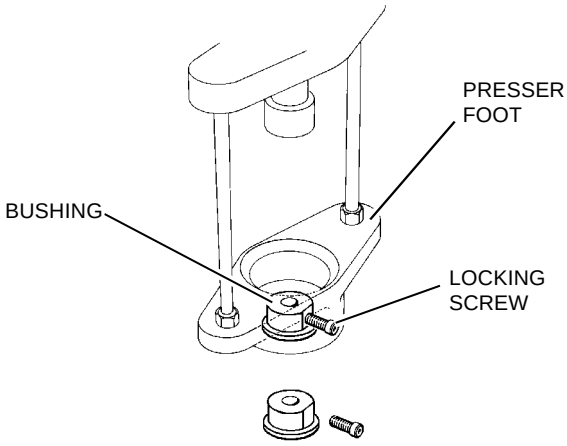
1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-85).
3. Remove the cutter head back cover (page 4-86).
4. Check the cutting surface of the drill bit for nicks, burrs, and dullness. If necessary, replace the drill bit.
5. Install the cutter head back cover (page 4-86).
6. Install the cutter head front cover (page 4-85).
7. Turn on the C-200B controller.



Remove

1. Turn off the C-200B controller.
2. Remove the cutter head front cover (page 4-85).
3. Remove the cutter head back cover (page 4-86).
4. If you are using a hollow bit, remove the ejector rod.
   a. Hold the chuck in place with a wrench.
   b. Use another wrench to loosen the upper collet.
   c. Slide the ejector rod up and out through the center of the collet.
5. Remove the drill bushing.
   a. Loosen the locking screw.
   b. Pull the bushing out from the bottom of the presser foot assembly.
6. Remove the drill bit.
   a. Hold the chuck in place with a wrench.
   b. Use another wrench to loosen the lower collet.
   c. Pull the drill bit down out of the collet through the presser foot assembly.





Install

1. If you are installing a new drill bit, use Tables 4-4 and 4-5 to select the matching ejector rod and collet.

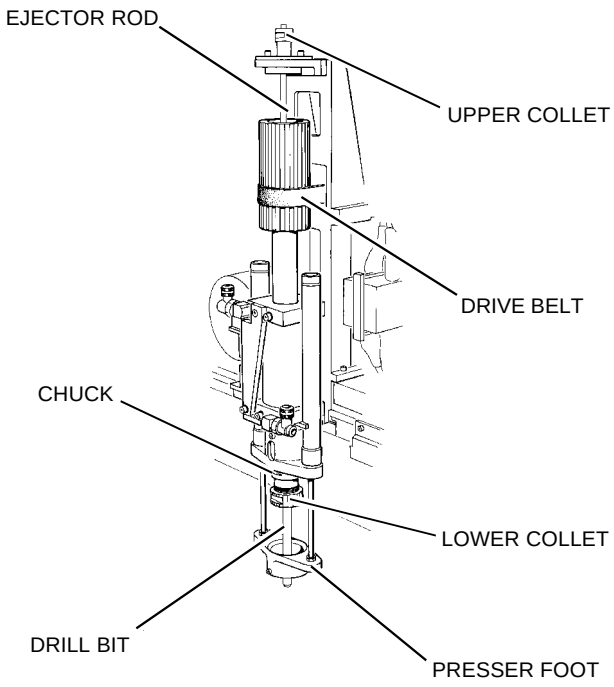
2. Select and install the new drill bit.

   a. Slide the drill bit up through the center of the lower collet until the drill bit will not slide up any more.

   b. Hold the chuck in place with a wrench.

   c. Tighten the lower collet finger tight.

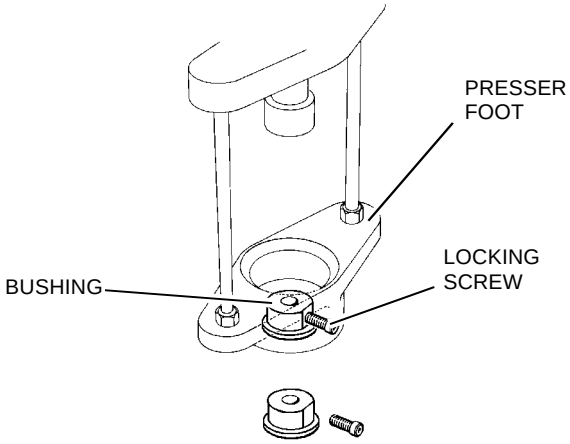
   d. With another wrench, tighten the lower collet ¼ turn more. This holds the drill in place.



3. Install the drill bushing.

   a. Slide the drill bushing up into place from under the presser foot assembly. The bushing fits around the drill bit.

   b. Install the locking screw.

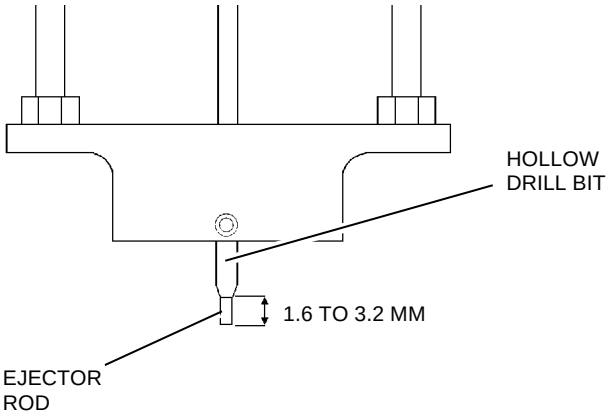


4. If you are installing a hollow bit, install the correct ejector rod (see Tables 4-4 and 4-5).

   a. Make sure that the upper collet is in place and loose.

   b. Slide the ejector rod down through the center of the collet.

   c. Align the ejector rod so that it is 1.6 to 3.2 mm (1/16 in. to 1/8 in.) lower than the bottom of the drill with the drill up.

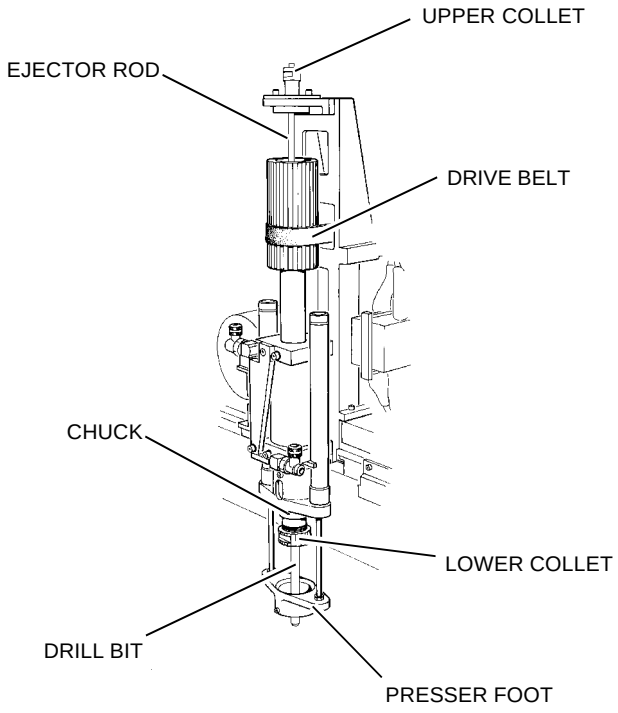


d. Tighten the upper collet finger tight.

e. With another wrench, tighten the upper collet ¼ turn more. This holds the ejector rod in place.

5. Tighten the chuck finger-tight.

6. Use an open-end wrench to tighten the chuck ¼ turn more.



7. Check drill penetration into the bristle.

a. Turn on the C-200B controller.

b. At the BCP, turn on the **KNIFE** switch.

c. At the **SYSTEM:** prompt, type **C200B**, then press **ENTER**.

d. The monitor will display the following message:

Enable SERVO POWER or press:
D for Diagnostic Menu
M for Download Menu
Escape to ABORT...

e. Type **D**.

f. Press **ENTER**.

g. Press the **SPACE** bar to select:

23 - IO Diagnostic

h. Press **ENTER**.

The monitor displays the DG 23 menu.

i. Use the arrow keys to highlight **Drill Motor**.

j. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This turns on the drill motor.

k. Use the arrow keys to highlight **Drill Sol**.

l. Hold down the **CTRL** key on your keyboard and press the **SPACE** bar. This plunges the drill and the presser foot bowl.

m. With a pencil, mark the drill at the point it enters the bristle.

n. On the C-200B controller, hold down the **CTRL** key and press the **SPACE** bar. The drill rises.

o. Press **Esc** to exit the diagnostic.

p. Turn off the C-200B controller.

q. Measure the distance from the pencil line on the drill to the tip of the drill. The pencil line should be 6 to 7 mm (¼ inch) above the tip of the drill.

8. If the pencil line is not the correct distance from the tip of the drill, adjust the drill penetration.

   a. Hold the chuck in place with a wrench.

   b. Use another wrench to loosen the lower collet.

   c. Slide the drill bit up or down to decrease or increase drill penetration.

   d. Hold the chuck in place with a wrench.

   e. Tighten the lower collet finger tight.

   f. With another wrench, tighten the lower collet ¼ turn more. This holds the drill in place.

   g. Repeat steps 7 and 8 until drill penetration is correct.

9. Install the cutter head back cover (page 4-86).

10. Install the cutter head front cover (page 4-85).

11. Turn on the C-200B controller.

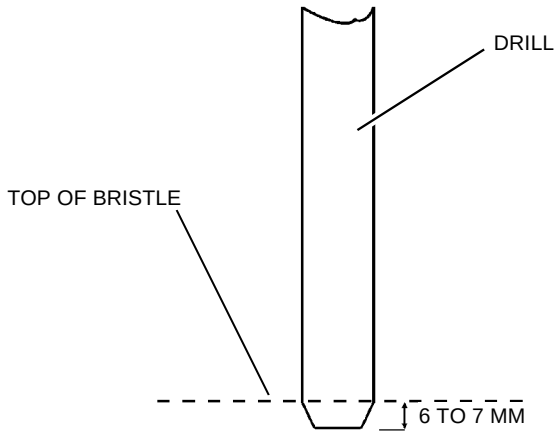


Table 4-4. S-7200 Standard Drill Components

Drill Bit			Accessories Part No.
Size (mm/in.)	Type	GGT Part No.	
1.2 / 0.046	solid	044330000	064385000
1.6 / 0.062	solid	044330001	064387000
2.0 / 0.078	solid groove point	030595003	064389000
2.4 / 0.093	half-round	030595002	064391000
2.4 / 0.093	hollow	024351001	064393000
3.2 / 0.125	half-round	030595001	064395000
3.2 / 0.125	hollow	024351002	064397000
4.0 / 0.156	hollow	024351003	064399000
4.8 / 0.187	hollow	024351004	064401000
6.4 / 0.250	hollow	072490000	064403000

Table 4-5. S-7200 Heavy-duty Drill Components

Drill Bit			Accessories Part No.
Size (mm/in.)	Type	GGT Part No.	
1.2 / 0.046	solid	044330000	064386000
1.6 / 0.062	solid	044330001	064388000
2.0 / 0.078	solid groove point	030595003	064390000
2.4 / 0.093	half-round	030595002	064392000
2.4 / 0.093	hollow	024351001	064394000
3.2 / 0.125	half-round	030595001	064396000
3.2 / 0.125	hollow	024351002	064398000
4.0 / 0.156	hollow	024351003	064400000
4.8 / 0.187	hollow	024351004	064402000
6.4 / 0.250	hollow	072490000	064404000
7.9 / 0.312	hollow	072490001	064405000
9.5 / 0.375	hollow	062379001	062610000
12.7 / 0.500	hollow	062379002	062611000
15.0 / 0.591	hollow	062379003	062745000

Cutting Table

The cutting table (Figure 4-1) provides a work surface for cutting material. Its major assemblies include the beam, cutter head, conveyor, vacuum generator, and C-200B controller.

Racks

The racks are two toothed tracks that run the length of the cutting table. Motors and gears in the beam drive the beam along the racks. The beam cannot travel smoothly, if the racks are dirty.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
paint brush	N/A

Inspect

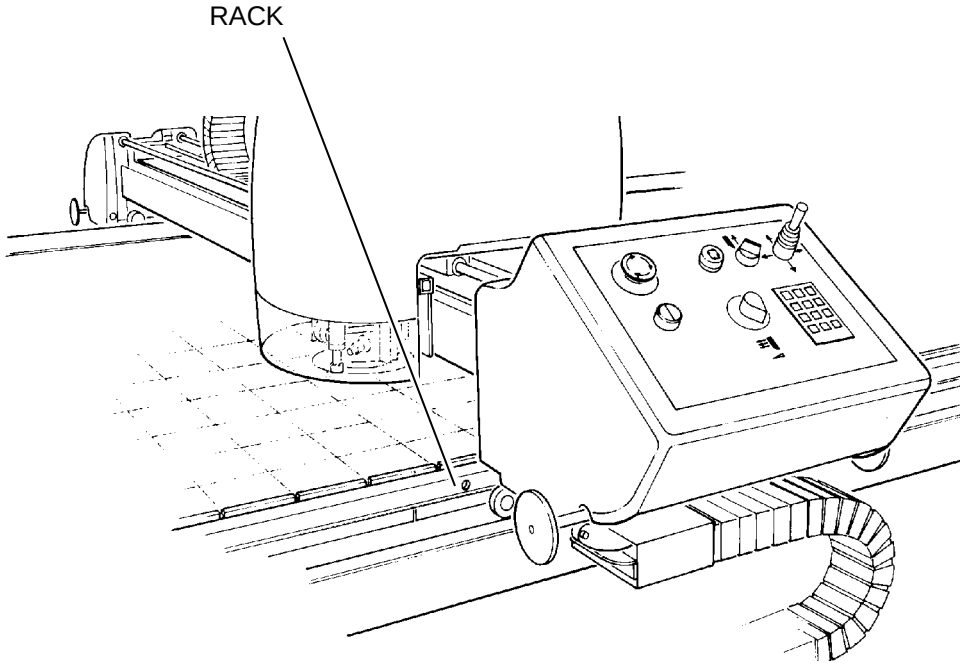
1. Turn off the C-200B controller.
2. Inspect the racks for built-up lint and dirt. Clean them, if necessary.
3. Turn on the C-200B controller.

Clean

1. Turn off the C-200B controller.
2. Remove all side panels (page 4-131).
3. Clean the racks with a paint brush and rag.

CAUTION: Do not lubricate the racks. Grease and oil cause lint to build up rapidly on the racks, make cleaning more difficult, and get thrown or rubbed into fabric.

4. Install all side panels (page 4-131).
5. Turn on the C-200B controller.



Flatways

The flatways are two flat surfaces that run the length of the cutting table. Motors and gears in the beam drive the beam along the flatways. The beam cannot travel smoothly, if the flatways are dirty.

Required Tools and Supplies

Item	GGT Part No.
clean shop rag	N/A
paint brush	N/A

Inspect

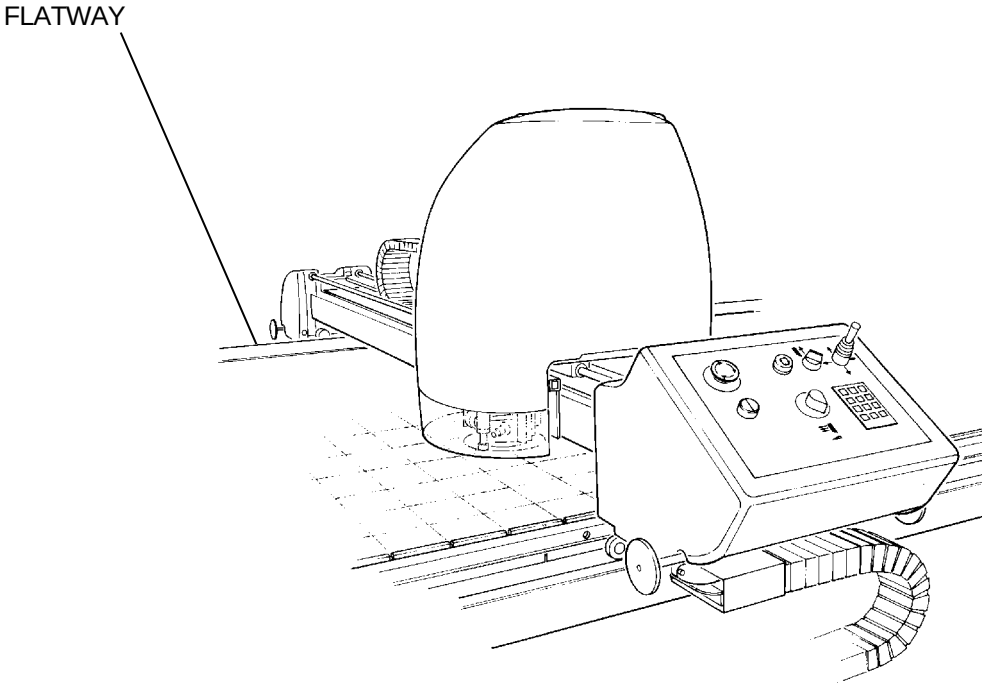
1. Turn off the C-200B controller.
2. Inspect the flatways for built-up lint and dirt. Clean them, if necessary.
3. Turn on the C-200B controller.

Clean

1. Turn off the C-200B controller.
2. Remove all side panels (page 4-131).
3. Clean the flatways with a paint brush and rag.

CAUTION: **Do not lubricate the flatways. Grease and oil cause lint to build up rapidly on the flatways, make cleaning more difficult, and get thrown or rubbed into fabric.**

4. Install all side panels (page 4-131).
5. Turn on the C-200B controller.

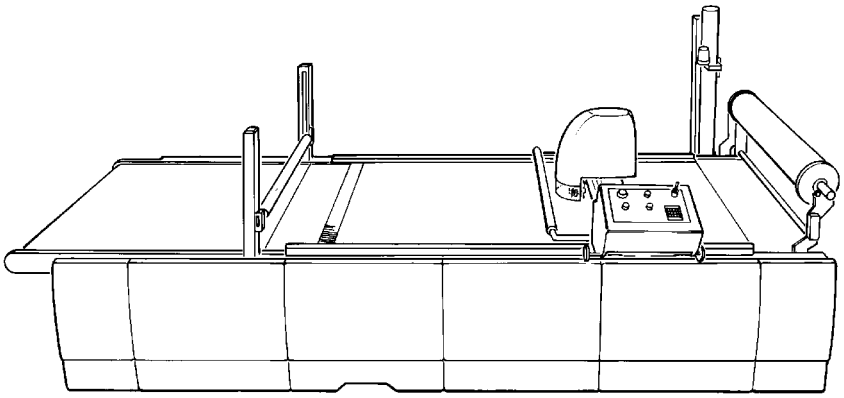


Side Panels

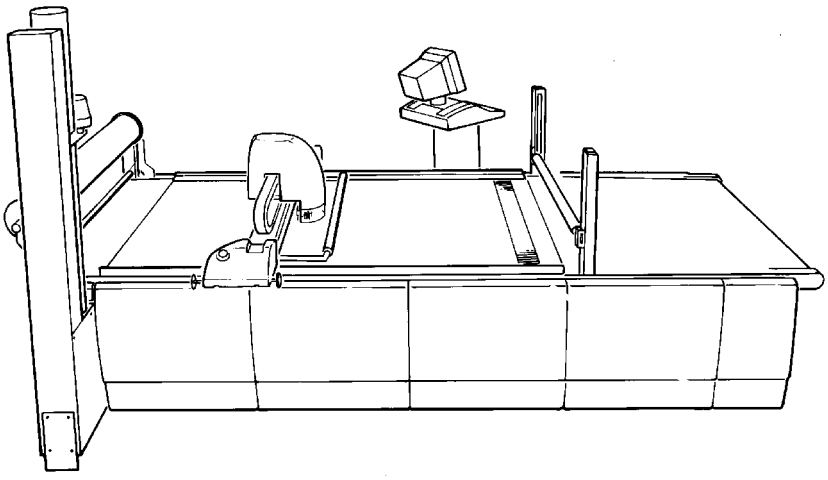
The side panels cover the sides of your GERBERcutter. They protect you from moving parts and give the GERBERcutter a finished look.

NOTE: The four corner panels and the side panel over the operator workstation pedestal are not interchangeable.

All side panels mount the same way. Two hooks on the upper part of each panel attach to the GERBERcutter frame. A metal clip, in the center at the bottom of the panel, clips under a rail on the GERBERcutter frame.



LEFT-SIDE PANELS



RIGHT-SIDE PANELS

Required Tools and Supplies

Item	GGT Part No.
none	

Remove

1. Lift the top of the panel up and pull it horizontally away from the cutter. This releases the hooks.

2. Lower the panel gently to release the bottom clip.

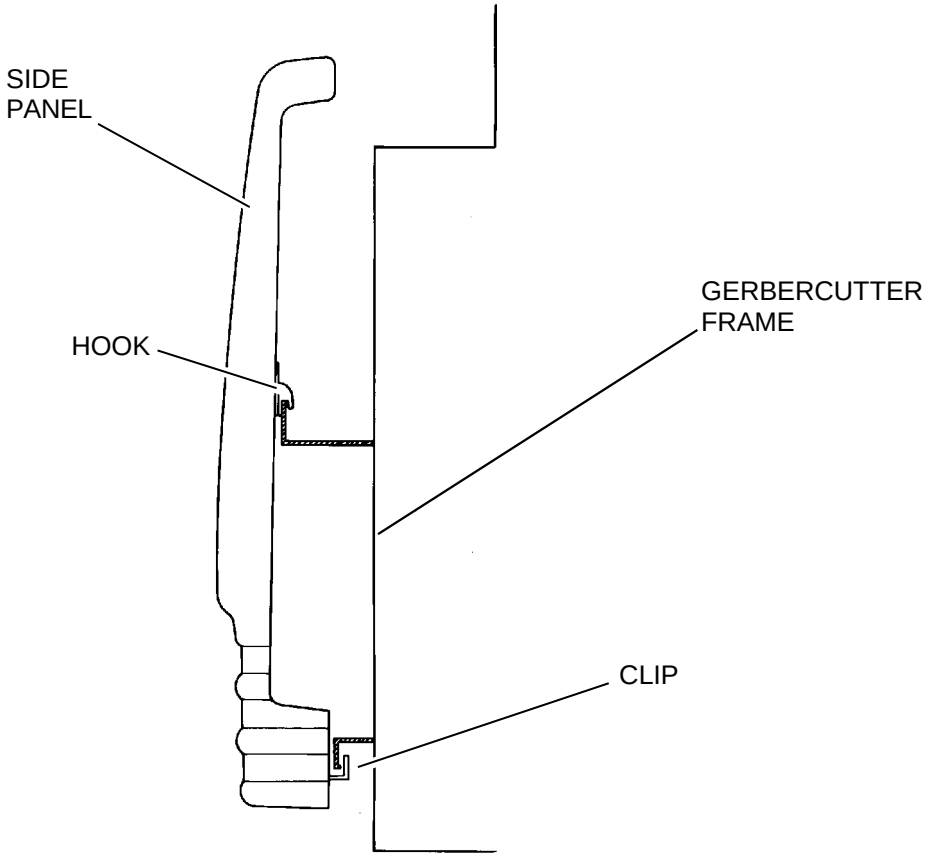
Install

1. Hold the top of the panel away from the frame of the cutter and hook the bottom panel clip onto the frame.

2. Pull up on the panel. This stops the bottom clip from sliding off the frame.

3. While pulling gently up on the panel, move the top of the panel towards the cutter until the panel touches the GERBERcutter's frame.

4. Gently lower the panel until the top clips hook onto the frame.



Take-On Ramp

The take-on ramp is a smooth, flat piece of stainless steel at the take-on end of the cutting table. This lets you easily load material for cutting onto the conveyor.

Required Tools and Supplies

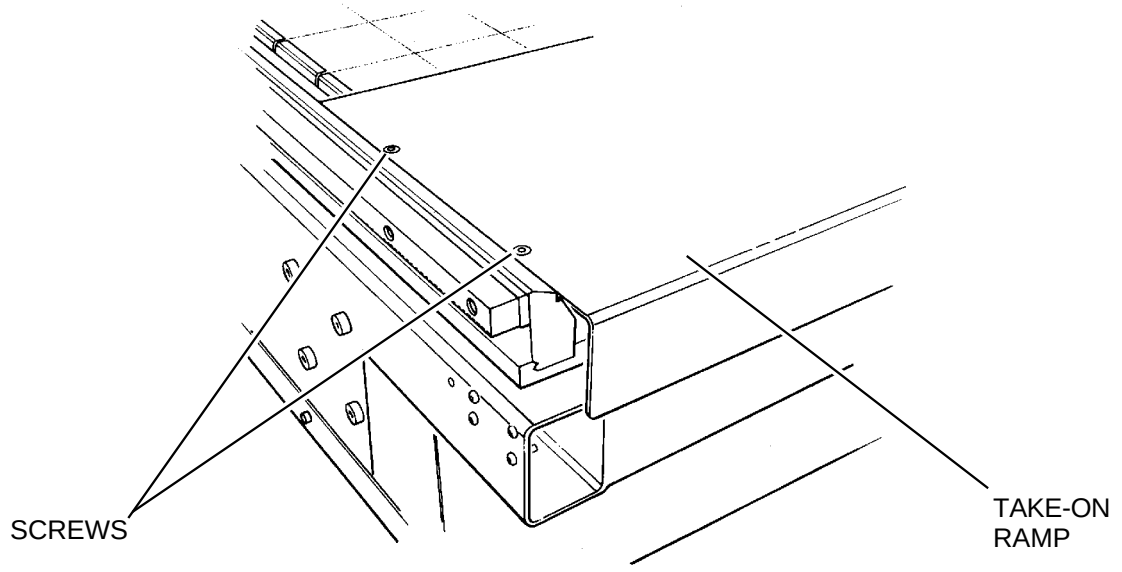
Item	GGT Part No.
metric T-handle hex key set	945500089

Remove

1. Turn off the C-200B controller.
2. Remove the screws that fasten the take-on ramp to the cutting table.
3. Lift the take-on ramp off the cutting table.

Install

1. Place the take-on ramp onto the cutting table. Make sure the screw holes on the ramp align with those on the cutting table.
2. Install the screws that fasten the take-on ramp to the cutting table.
3. Turn on the C-200B controller.



Conveyor

The conveyor is a moving work surface for cutting material. Proper cleaning and lubrication are vital for maintaining cut quality.

BRISTLE SQUARES. The BRISTLE SQUARES form the conveyor's work surface. They are plastic squares with bristles on the top side and a perforated base on the bottom. The BRISTLE SQUARES are installed in aluminum slats that join to make the conveyor. BRISTLE SQUARES last longer if you clean and rearrange them regularly. (Rearrange means to move the BRISTLE SQUARES to different places within each slat to spread wear evenly.)

Required Tools and Supplies

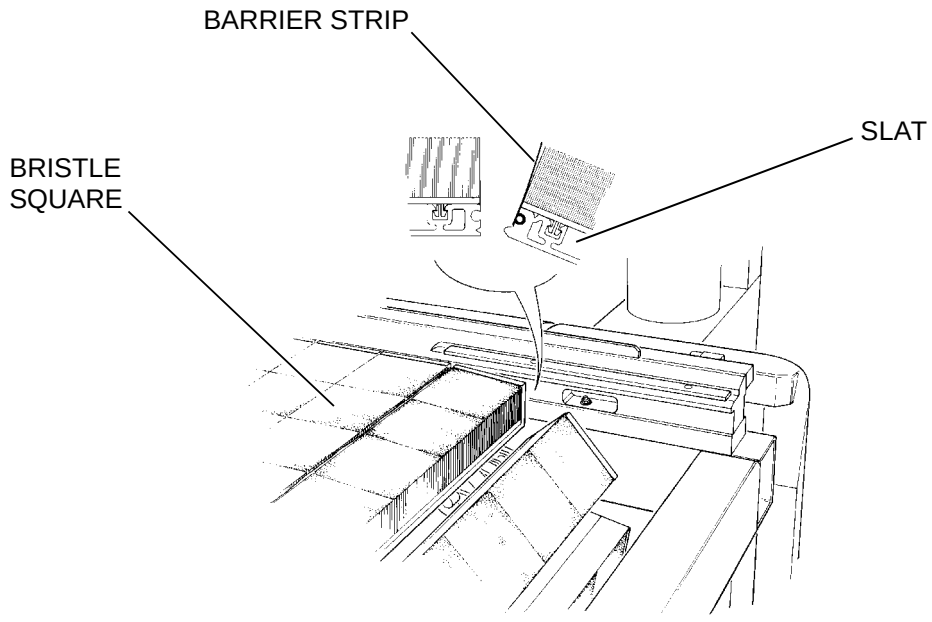
Item	GGT Part No.
metric T-handle hex keys	945500089
shop vacuum cleaner	N/A
slotted screwdriver	944211601
table air filter	460500110

Inspect

1. Turn on the C-200B controller.
2. Run the C-200B program.

NOTE: You must run the C-200B program so you can jog the conveyor. Jogging moves hidden parts of the conveyor into view.

3. Inspect the BRISTLE SQUARES for lint, broken bristles, and other cutting debris. Clean them, if necessary.
4. Inspect the BRISTLE SQUARES for signs of uneven wear, such as scarring or creasing of the bristle. Rearrange them, if necessary.



Clean

The optional automatic bristle cleaner or optional manual bristle cleaner are each designed to clean the BRISTLE SQUARES on your GERBERcutter.

Using the Manual Bristle Cleaner

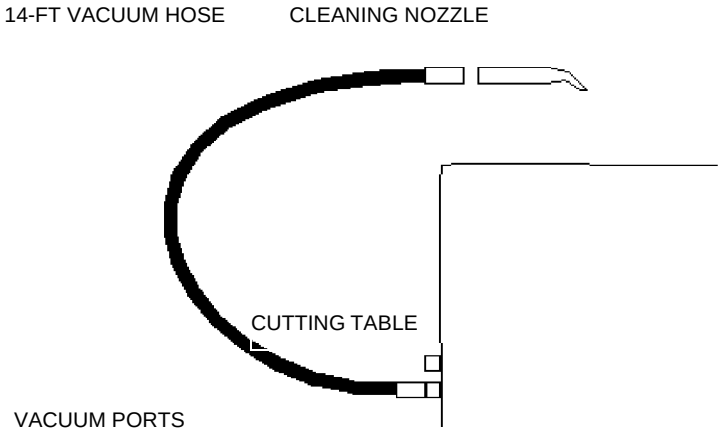
1. Inspect the table air filters. Clean them, if necessary (page 4-145).
2. If your system does not have the optional automatic bristle cleaner, connect the 14-ft vacuum hose to the vacuum port.

   OR

3. If your system has the optional automatic bristle cleaner, connect the 14-ft vacuum hose to the lower vacuum port.

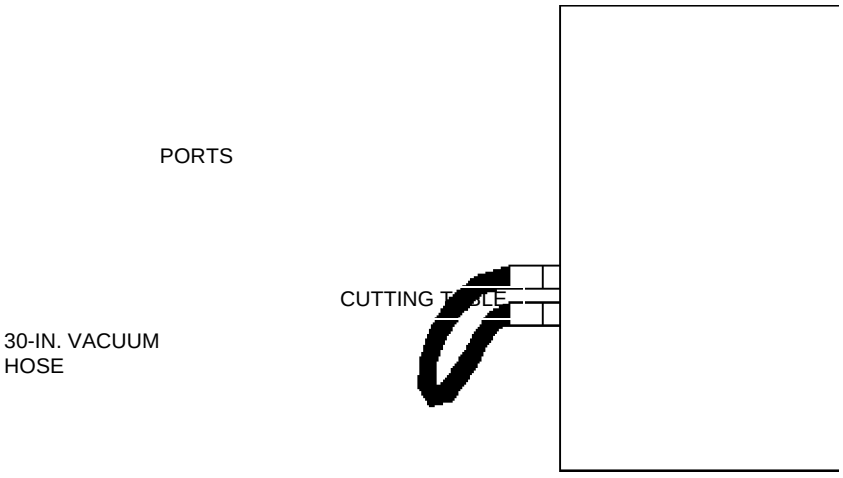
NOTE: There is only one port on systems that do not have an optional automatic bristle cleaner. It is the same as the lower port on the automatic systems. It leads to the vacuum generator and produces suction.

4. Install the cleaning nozzle onto the 14-ft vacuum hose.
5. Turn on the C-200B controller.
6. Run the C-200B program.
7. Initialize the cutting table.
8. Turn on table vacuum. (Press F9 on the operator workstation or turn on the **VAC** switch on the BCP.)
9. Turn on vacuum Energy Savings Mode (type **ES ON** at the command line).
10. Move the the cleaning nozzle over the work surface to clean the BRISTLE SQUARES.
11. Jog the conveyor as needed to clean all the BRISTLE SQUARES.
12. When you finish, turn off table vacuum.
13. Inspect the table air filters. Clean them if necessary (page 4-145).
14. Disconnect the 14-ft vacuum hose from the port.
15. Remove the cleaning nozzle from the 14-ft hose.
16. Turn off vacuum Energy Savings Mode (type ES OFF at the command line).
17. Exit the C-200B program.
18. Turn off the C-200B controller.



Using the Automatic Bristle Cleaner

1. Inspect the air filters. Clean them, if necessary (page 4-145).
2. Connect the 30-in. vacuum hose between both vacuum ports. This routes vacuum from the vacuum generator to the automatic bristle cleaner.
3. Turn on the C-200B controller.
4. Run the C-200B program.
5. Initialize the cutting table.
6. On the operator workstation, press **F9** to turn on the vacuum generator.
7. At the operator workstation, type **BC n**, where **n** is the number of cleaning passes per slat.
8. Press **ENTER** to start cleaning.
9. When you finish, press **Esc** to stop cleaning.
10. Turn off table vacuum.
11. Inspect the table air filters. Clean them if necessary (page 4-145).
12. Remove the 30-in. vacuum hose.
13. Exit the C-200B program
14. Turn off the C-200B controller.



Rearrange

Rearrange the BRISTLE SQUARES to ensure even wear.

NOTE: Move the BRISTLE SQUARES with the most wear to the area of the slat that gets the least wear.

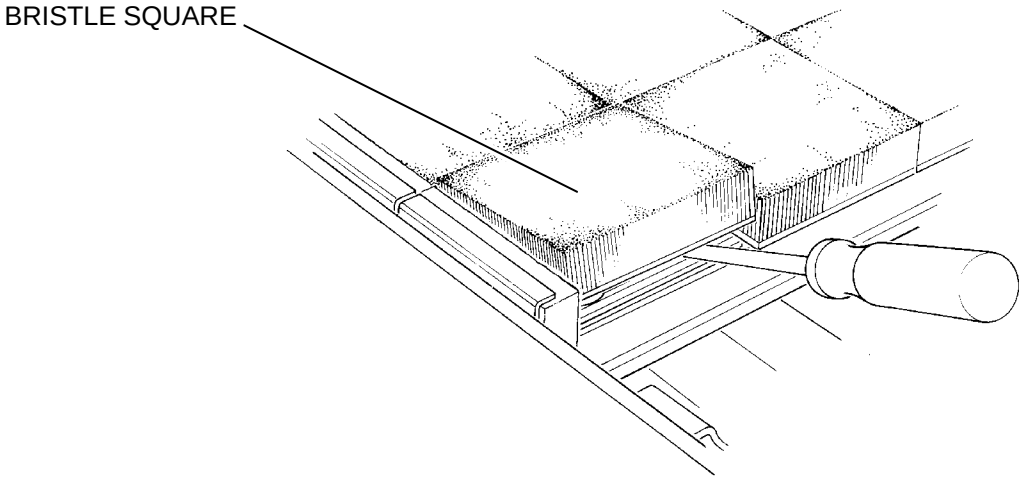
1. Turn on the C-200B controller.
2. Run the C-200B program.

NOTE: You must run the C-200B program so you can jog the conveyor. Jogging moves hidden parts of the conveyor into view.

3. Remove the take-on ramp (page 4-132).
4. Choose one slat to work on.
5. Jog the conveyor until the slat that you want to work on is ⅓ the way around the end of the conveyor. You need a space between the slat you want to work on and the neighboring slats.

WARNING! Turn off the C-200B controller before removing any BRISTLE squares. This prevents the conveyor from being jogged accidentally. Failure to do this may cause severe injury to yourself and/or damage to the equipment.

6. Turn off the C-200B controller.
7. First remove the BRISTLE SQUARE from the left end of the slat.
   a. Insert the tip of a slotted screwdriver between the slat and the BRISTLE SQUARE.
   b. Work the BRISTLE SQUARE loose by rotating the tip of the screwdriver.
   c. When the BRISTLE SQUARE is loose, pull it away from the slat.

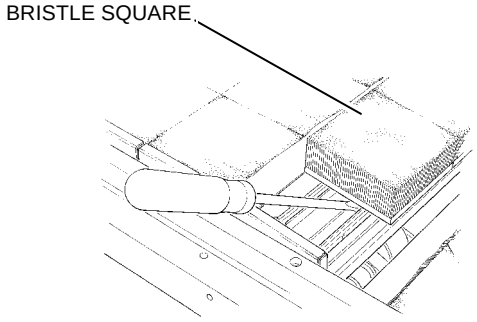


8. Remove additional BRISTLE SQUARES from the same slat.

    a. Slide the BRISTLE SQUARES along the slat so there is a space next to the one that you want to remove.

    b. Insert the blade of a screwdriver under the BRISTLE SQUARE.

    c. Use the screwdriver as a lever to pry the BRISTLE SQUARE out of the slat.



    d. Repeat steps a through c for each BRISTLE SQUARE that you want to remove.

9. Determine where you want to install each BRISTLE SQUARE.

NOTE: Make sure you move the BRISTLE SQUARES with the most wear to a part of the slat that gets the least wear.

10. In one slat, install all the BRISTLE SQUARES.

    a. Align each BRISTLE SQUARE horizontally on the left end of the slat.

    b. There are four clips on the back of the BRISTLE SQUARE that fit into two slots on the slat. Push the BRISTLE SQUARE firmly onto the slat with the palm of your hand. This sets the BRISTLE SQUARE in the slat.

    c. Push down on each corner of the BRISTLE SQUARE to make sure that each of the four clips is secure.

    d. Slide each BRISTLE SQUARE to the right end of the slat.

    e. Repeat steps a. through d. until the slat is full.

NOTE: If you install the BRISTLE SQUARES correctly, they will be flat and flush with the rest of the BRISTLE SQUARES on the work surface.

11. Repeat step 10a. through 10e. for each slat until you have installed BRISTLE SQUARES in all the slats

Slats. The slats are aluminum trays that hold the BRISTLE SQUARES. The slats are linked by the conveyor chain to form the conveyor. Each slat has several seals that must be kept in good condition to maintain vacuum during cutting. These seals are the barrier strip, tongue, groove, and vacuum seal.

CAUTION: Vacuum seals may or may not be used depending on your system's needs. If vacuum seals are used, they may be used on every slat, or on every second slat, or on every third slat, or on every fourth slat. Before doing any slat maintenance, you must see whether and at what interval these seals are used. Make sure that you keep this interval when you reinstall any slat that you remove. If the vacuum seals are not installed at the correct interval, cut quality and system performance may suffer.

Required Tools and Supplies

Item	GGT Part No.
3/8-in. drive socket set (metric)	945500090
3/8-in. drive socket set (metric)	945500092
slotted screwdriver	944211601

Inspect

1. Remove the take-on ramp (page 4-132).

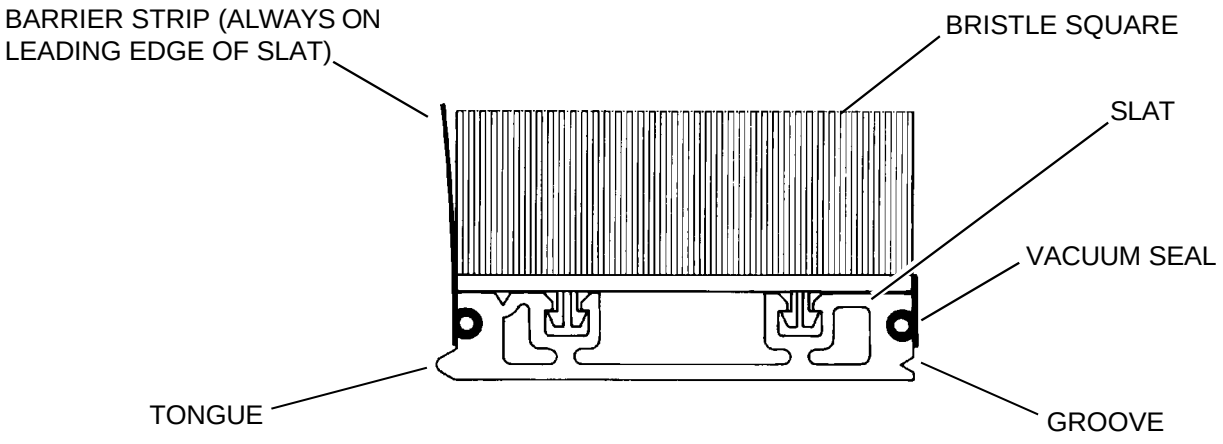
NOTE: Removing the take-on ramp lets you see the edges of the slats.

2. Turn on the C-200B controller.

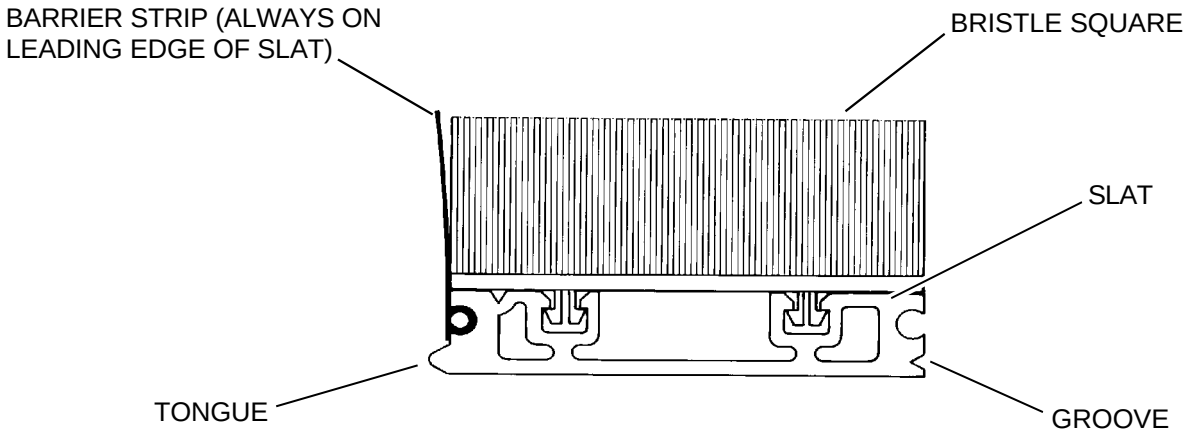
3. Run the C-200B program.

NOTE: You must run the C-200B program so you can jog the conveyor. Jogging moves hidden parts of the conveyor into view.

4. Stand at the take-on end of the cutting table. From here, you can see the edges of the slats as they come from under the table.



5. Inspect the slat edges for:
   - loose, torn, or crushed foam blocks
   - loose or torn barrier strips
   - dented, gouged, or bent tongue
   - dented, gouged, or bent groove
6. If you see any of these defects, mark the problem slat with a piece of masking tape. This will help service personnel to identify the problem slat later.
7. Jog the conveyor so the next set of edges comes into view.
8. Repeat steps 4., 5., and 6. until you have checked all the slats. If you find any of these defects, call your service technician.
9. Turn off the C-200B controller.
10. Install the take-on ramp (page 4-132).



Remove

CAUTION: Do not jog the table if more than three adjacent slats are removed. If you need to jog the table, install every other slat and torque the mounting bolts to 677 Nmm (6 in.lbs). Failure to install every other slat may damage the conveyor and conveyor chain.

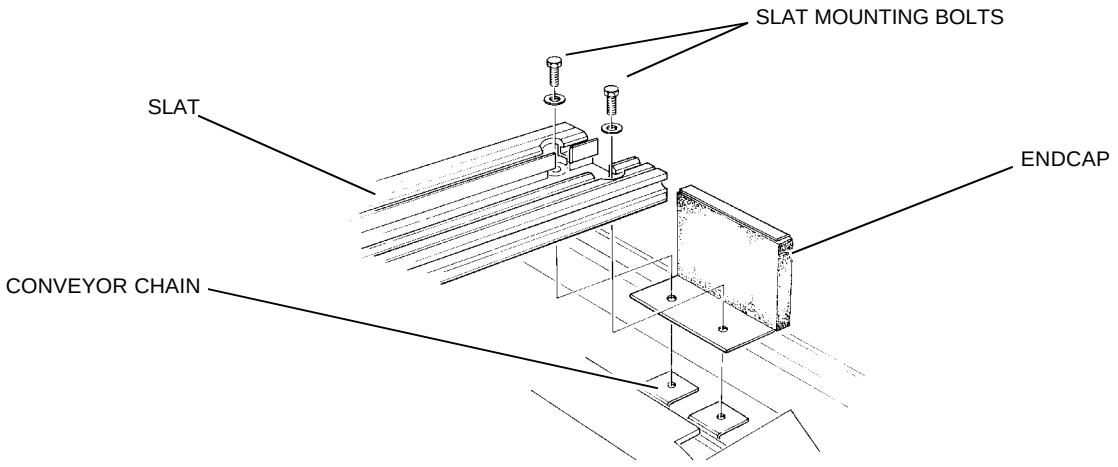
1. Remove the take-on ramp (page 4-132)
2. Turn on the C-200B controller.
3. Run the C-200B program.

CAUTION: You need to know whether your system uses vacuum seals and, if so, on which slats the vacuum seals are applied. You must make sure you install the slats with the vacuum seal at the correct interval.

4. Jog the conveyor to see whether and where slat vacuum seals are used. If vacuum seals are used, note whether they are used on every slat, every second slat, every third slat, or every fourth slat.
5. Choose the slat that you want to remove.
6. Jog the conveyor until the slat that you want to work on is ⅓ the way around the end of the conveyor. You need a space between the slat you want to work on and the neighboring slats.

WARNING! Turn off the C-200B controller before removing any BRISTLE SQUARES or slats. This prevents the conveyor from being jogged accidentally. Failure to turn off the C-200B controller may cause severe injury to yourself and/or damage to the equipment.

7. Exit the C-200B program.
8. Turn off the C-200B controller.
9. Remove the BRISTLE SQUARE from each end of the slat (page 4-136).
10. Remove the two slat mounting bolts from each end of the slat. The slat mounting bolts fasten the slat and the endcap to the conveyor chain.
11. Lift the slat from the cutting table.
12. Lift the end caps from the table.



Install

CAUTION: Do not jog the table if more than three adjacent slats are removed. If you need to jog the table, install every other slat and torque the mounting bolts to 677 Nmm (6 in.lbs). Failure to install every other slat may damage the conveyor and conveyor chain.

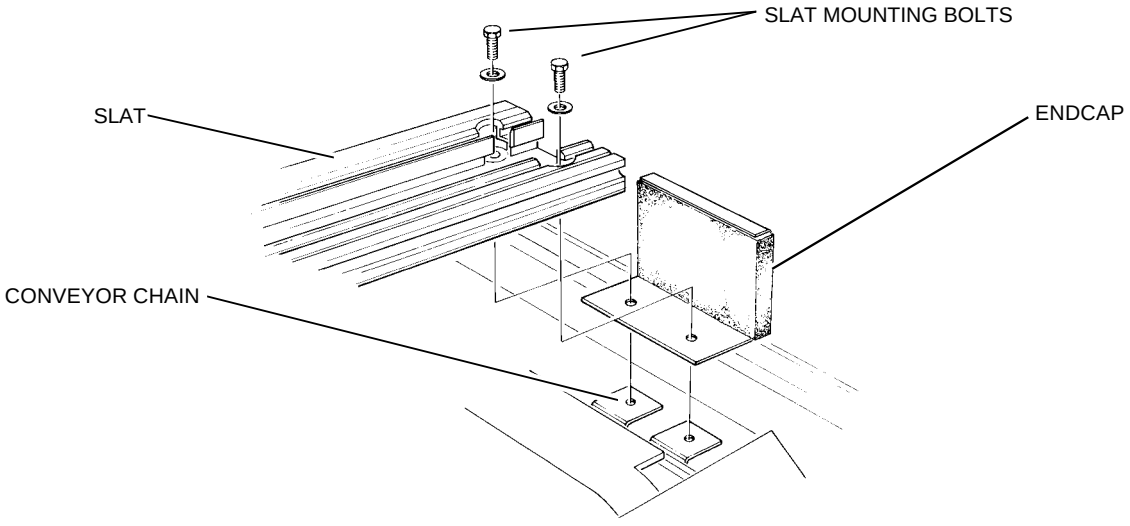
1. Turn on the C-200B controller.
2. Run the C-200B program.
3. Choose the place where you want to install a slat.

CAUTION: If vacuum seals are used on your system, they are spaced at regular intervals. Make sure that you do not change this interval when you reinstall slats.

4. Check to see whether the slat you want to install should have a vacuum seal. If so, make sure that you install a slat with a vacuum seal.
5. Jog the conveyor until the place for the slat is ⅓ the way around the end of the conveyor.
6. Exit the C-200B program.
7. Turn off the C-200B controller.

WARNING! Turn off the C-200B controller before installing any slats. This prevents the conveyor from being jogged accidentally. Failure to turn off the C-200B controller may cause severe injury to yourself and/or damage to the equipment.

8. Put the endcap with the slotted bolt holes on the conveyor at the left side of the table.
9. Put the endcap with the round bolt holes on the conveyor at the right side of the table.
10. Align the bolt holes in the endcaps with the bolt holes in the conveyor.
11. Put the slat onto the endcaps. Align the bolt holes in the slat with those in the endcaps and conveyor.
12. Put the slat mounting bolts into the bolt holes. Each bolt should go through bolt holes in the slat, end cap, and conveyor.



13. With your hand, turn each bolt clockwise to thread it part of the way into its bolt hole.

14. Gently push the left end cap towards the middle of the slat until it is aligned with neighboring end caps.

15. With a torque wrench, tighten each slat mounting bolt to 677 Nmm (6 in.lbs).

16. Repeat steps 1. through 15. for each slat that you need to install.

17. Jog the conveyor through two complete revolutions.

18. Exit the C-200B program.

19. Turn off the C-200B controller.

20. On each slat that you are installing, tighten the slat mounting bolts to between 17.6 and 20.3 Nm (13 and 15 ft.lbs).

21. Install BRISTLE SQUARES in both ends of each slat (page 4-137).

22. Turn on the C-200B controller.

23. Run the C-200B program.

24. Advance the conveyor to expose other slats that need to be tightened.

25. Exit the C-200B program.

26. Turn off the C-200B controller.

27. Repeat steps 20. through 26. until you have tightened all the slats.

28. Turn on the C-200B controller.

29. Run the C-200B program.

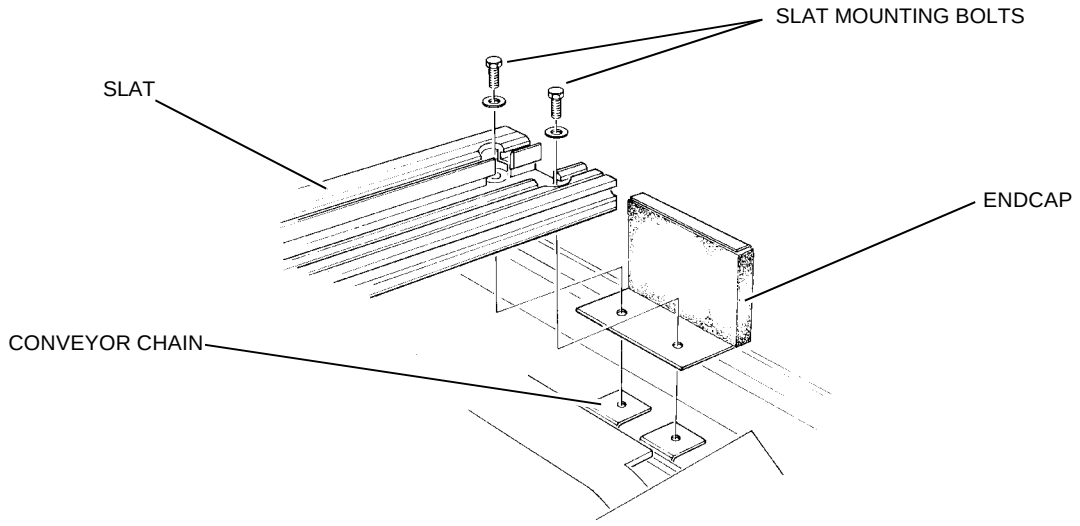
30. Slowly jog the conveyor through two revolutions and make sure that all endcaps and slats align.

CAUTION: **If any slats or endcaps are misaligned, you must remove and reinstall them. Failure to do so can damage the conveyor and/or cause inaccurate cutting.**

31. Exit the C-200B program.

32. Turn off the C-200B controller.

33. Install the take-on ramp (page 4-132).



Drive Assembly. The drive assembly turns the conveyor. It is on the take-off end of the operator side of the cutting table.

Required Tools and Supplies

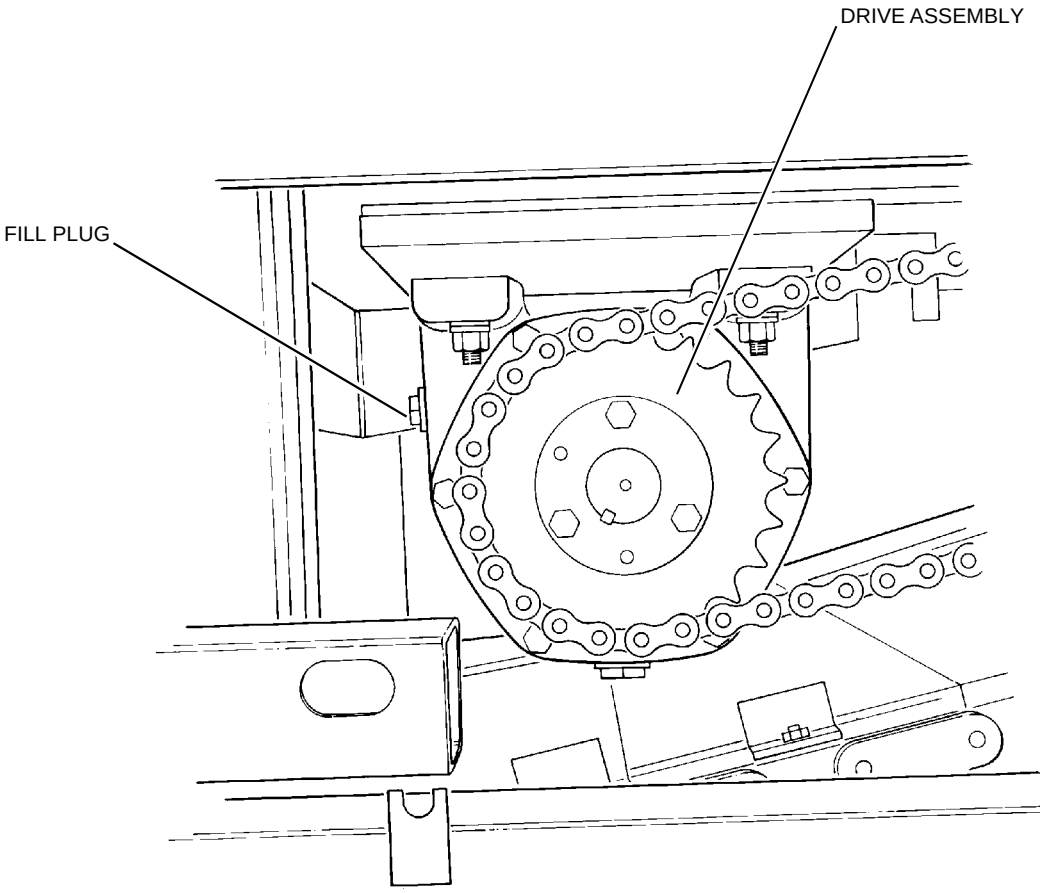
Item	GGT Part No.
shop rag	N/A
Mobil® SHC 629 synthetic oil	N/A

Lubricate

1. Turn off the C-200B controller.
2. Remove side panels as needed to work on the drive assembly (page 4-131).
3. Check the oil level in the gearbox.
   a. Remove the fill plug. The oil should be up to the bottom of the fill hole.

CAUTION: Use only the recommended oil to fill the gearbox. Use of other oils may damage the gearbox.

   b. If necessary, fill the gearbox with Mobil® SHC 629 synthetic oil.
   c. Install the fill plug.
4. Install any side panels that you removed (page 4-131).
5. Turn on the C-200B controller.



Drive Chains. The slats are bolted to two drive chains to form the conveyor. One drive chain runs under each side of the conveyor. The drive chain on the right side connects the conveyor to the drive assembly.

Required Tools and Supplies

Item	GGT Part No.
multipurpose grease	596500005
shop rag	N/A

Lubricate

1. Turn off the C-200B controller.
2. Remove all side panels (page 4-131).
3. Find the left-side drive chain.
4. Using the shop rag, clean lint and other debris from the chain.
5. Lubricate the chain lightly with multipurpose grease.

CAUTION: To avoid damage to material, do not over grease. Moving equipment throws excess lubricant.

6. Find the right-side drive chain.
7. Repeat steps 4 and 5 for the right-side drive chain.

CAUTION: To avoid damage to material, do not over grease. Moving equipment throws excess lubricant.

8. Install all side panels (page 4-131).
9. Turn on the C-200B controller.

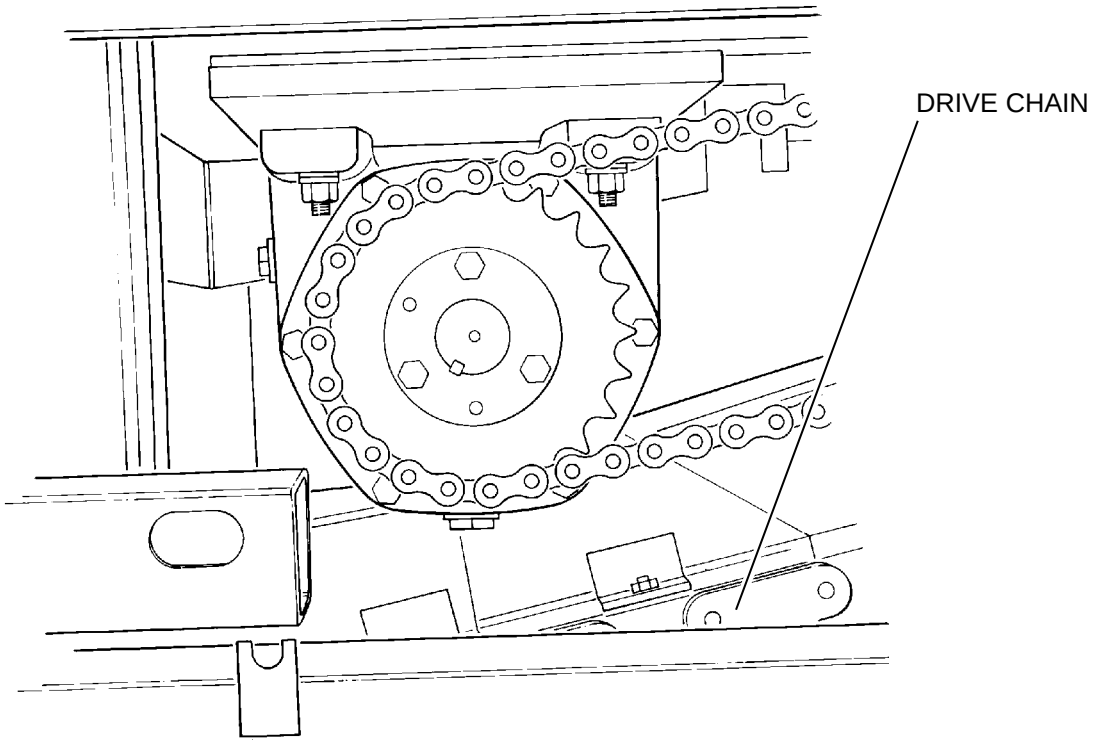


Table Air Filters

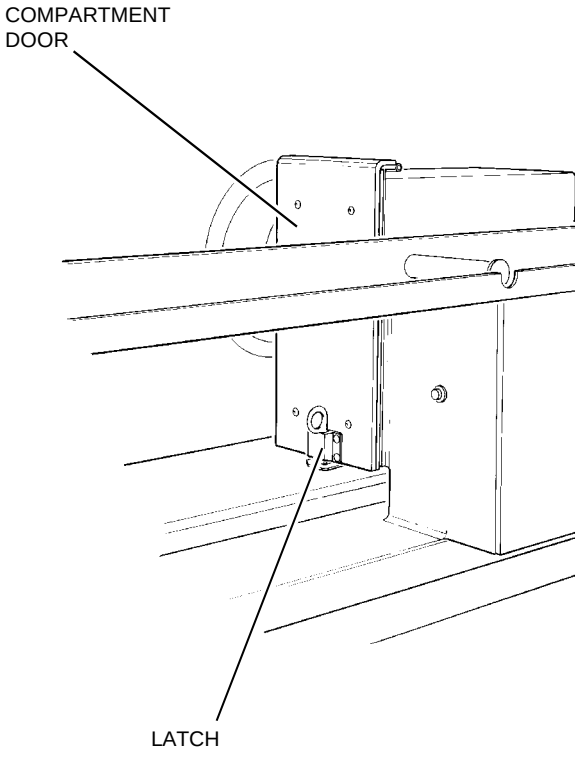
Your GERBERcutter has two high-efficiency air filters to improve air flow. If they get clogged, air pressure drops.

The optional manual and automatic bristle cleaners also use these filters to collect debris.

Required Tools and Supplies

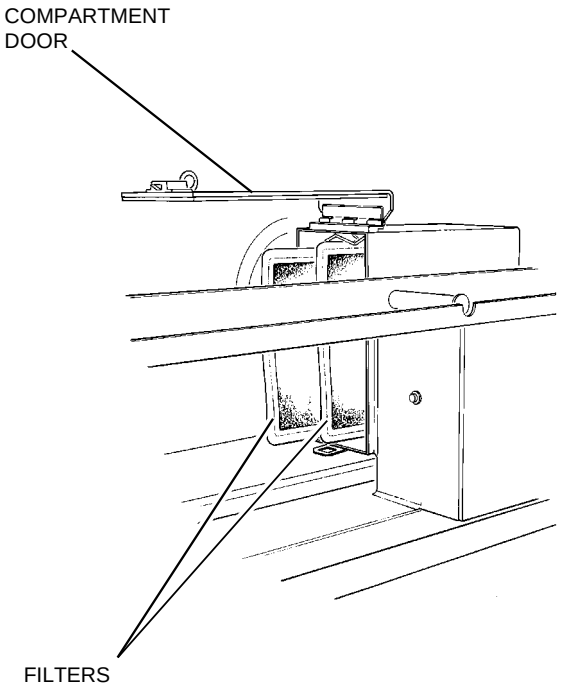
Item	GGT Part No.
air filter	460500110
shop vacuum cleaner	N/A

WARNING! Avoid breathing lint from the filters. Wear a mask suitable for this purpose.



Inspect

1. Turn off the C-200B controller.
2. Remove left side panels as needed to work on the air filters (page 4-131).
3. Pull up on the door latch and lift open the filter compartment door.
4. Remove the filters by sliding them straight out on their track.
5. Inspect the filters and compartment for built-up lint. Clean them, if necessary.
6. Install the filters by sliding them into the compartment until they stop.
7. Close the filter compartment door.
8. Install any side panels that you removed (page 4-131).
9. Turn on the C-200B controller.



Clean

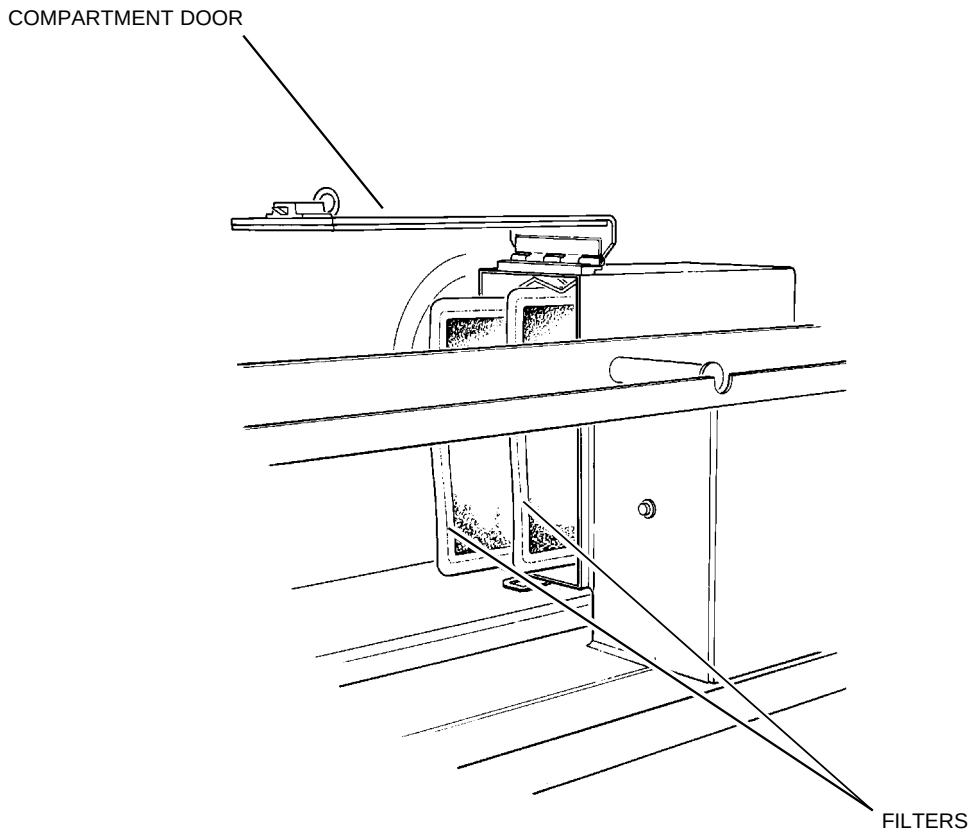
1. Turn off the C-200B controller.
2. Remove left side panels as needed to work on the air filters (page 4-131).
3. Open the filter compartment door.
4. Remove the filters by sliding them straight out on its track.

CAUTION: Never use the optional manual bristle cleaner to vacuum the air filters. The optional manual bristle cleaner uses the filters to collect debris.

5. Vacuum the filters to remove heavy lint.

NOTE: A filter may become so plugged that you cannot clean it effectively. If this happens, install a new filter.

6. Vacuum the inside of the filter compartment to remove lint.
7. Install the filters by sliding them into the compartment until they stop.
8. Close the filter compartment door.
9. Install any side panels that you removed (page 4-131).
10. Turn on the C-200B controller.



Vacuum Generator Assembly

The vacuum generator assembly includes the vacuum generator and the vacuum generator motor. The motor turns the vacuum generator through four drive belts.

Required Tools and Supplies

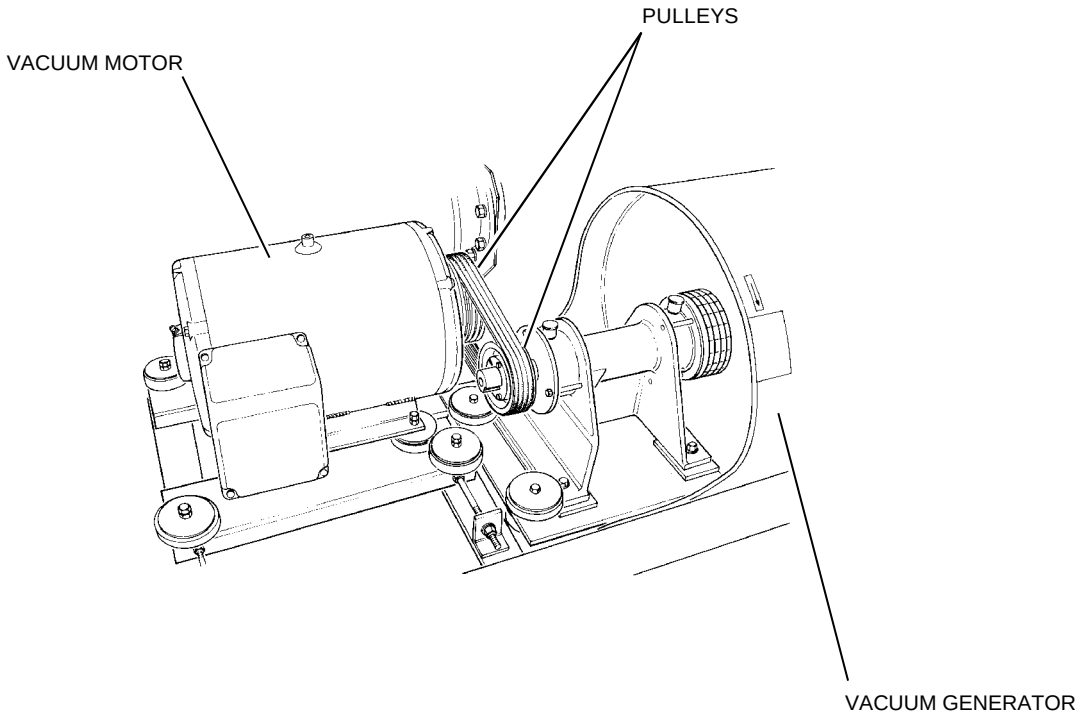
Item	GGT Part No.
24-inch ruler/straight-edge	N/A
belt deflection gauge	045412000
Chevron® SRI #2 grease	596041001
grease gun	944233101
multi-purpose grease	596500005

Vacuum Generator Motor

Inspect

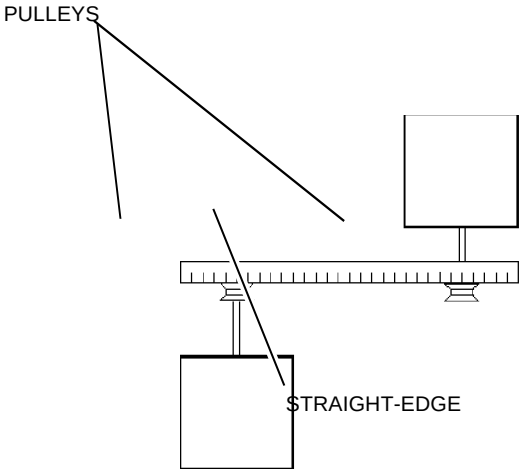
WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).

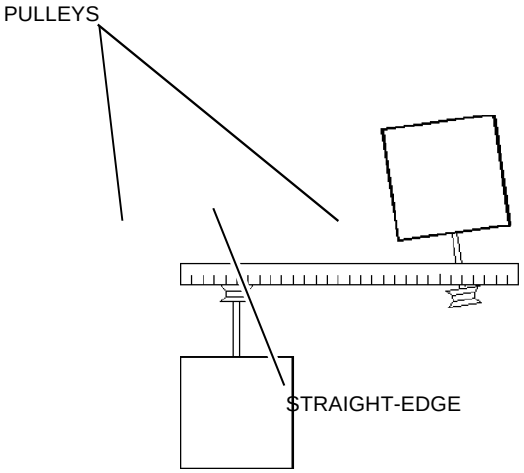


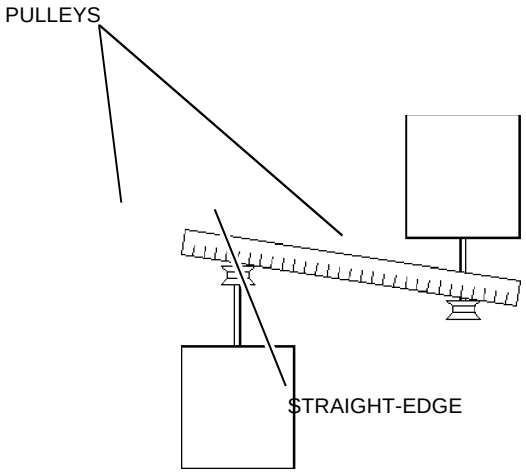
3. Check that the motor is square.

   a. Put a straight-edge across the face of the vacuum generator motor and generator pulleys. Do this both at the top and bottom of the pulleys.



   b. If the straight-edge is not flat, adjust the squareness of the vacuum motor.





OR

   c. If the straight edge is flat against the top of the pulleys but not the bottom, or if it is flat against the bottom and not the top of the pulleys, your motor may have an incorrect vertical alignment. Call your service technician.

4. Lubricate the motor as needed according to scheduled maintenance (page 4-150).

5. Close the CTOT (page 4-169).

6. Turn on the C-200B controller.

Adjust

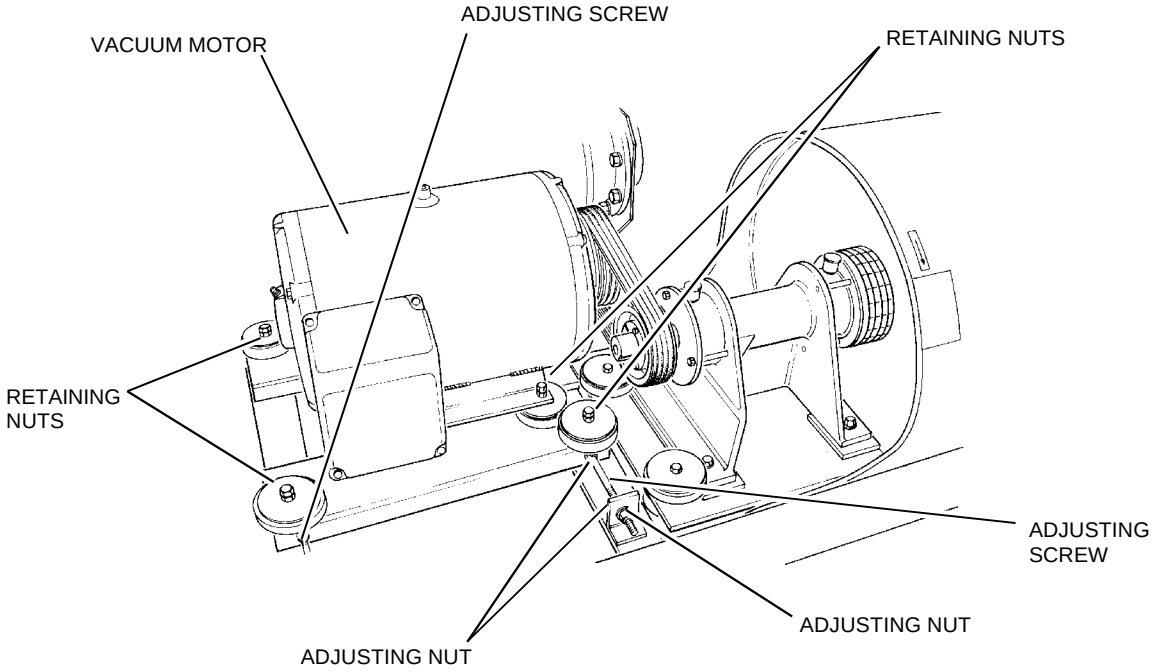
WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Loosen all eight retaining nuts.
4. Turn the adjusting nuts on either adjusting screw to move the the vacuum motor so it is square with the vacuum generator.
5. Inspect the vacuum motor (page 4-147).
6. If the vacuum motor is not square, repeat steps 4. and 5. until it is square.
7. Tighten all of the retaining nuts to 11.3 Nm (100 in.lbs).

CAUTION: Make sure the adjusting nuts are tight. Otherwise, the vacuum motor may vibrate out of position.

CAUTION: Do not move the motor while you are tightening the adjusting nuts. If you do, you must recheck the squareness of the vacuum motor.

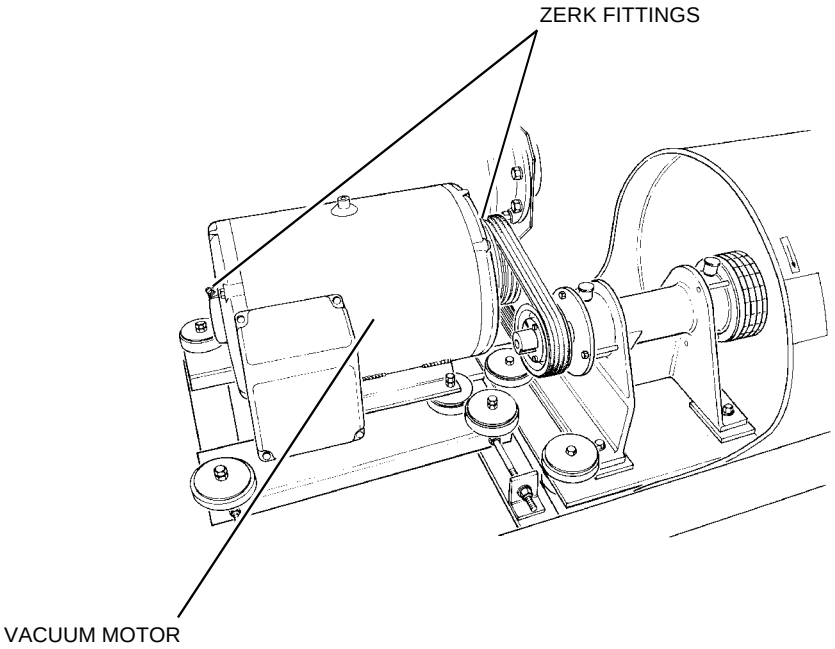
8. On each adjusting screw, tighten each adjusting nut with an open-end wrench until the nut stops moving.
9. Inspect the vacuum drive drive belts and adjust them if needed (page 4-151).
10. Close the CTOT (page 4 -169).
11. Turn on the C-200B controller.



Lubricate

WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Use the grease gun to apply multi-purpose grease to the two vacuum motor zerk fittings.
4. Close the CTOT (page 4 -169).
5. Turn on the C-200B controller.

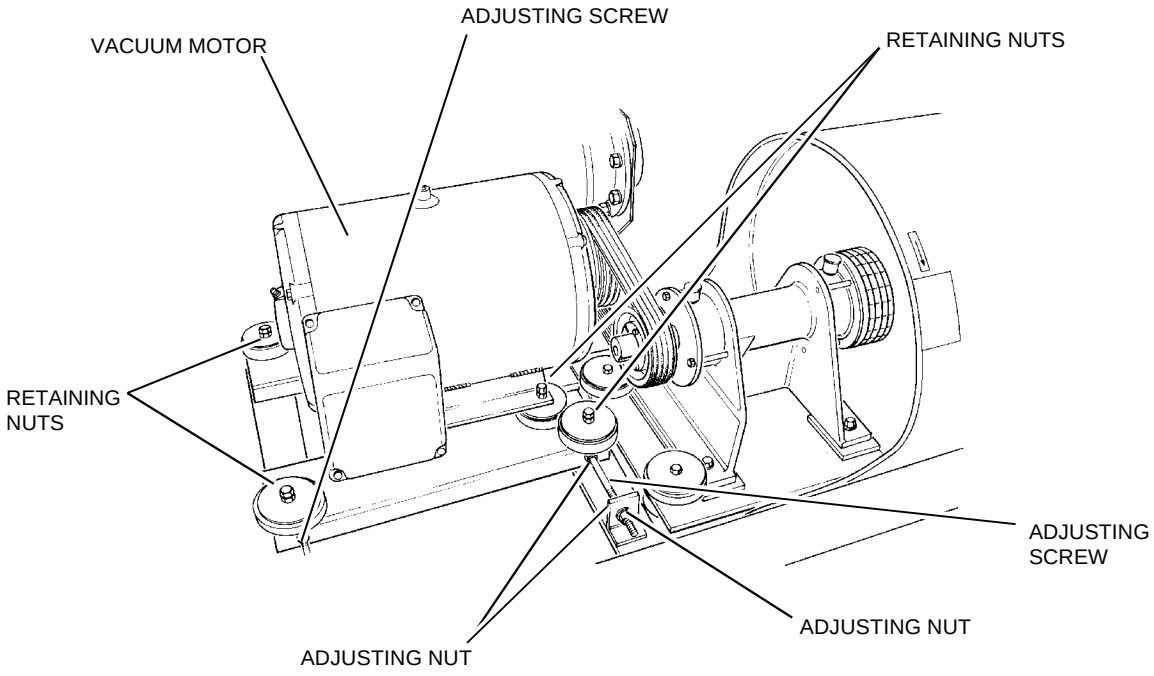


Drive Belts. Four drive belts connect the vacuum generator motor to the vacuum generator.

Inspect

> **WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.**

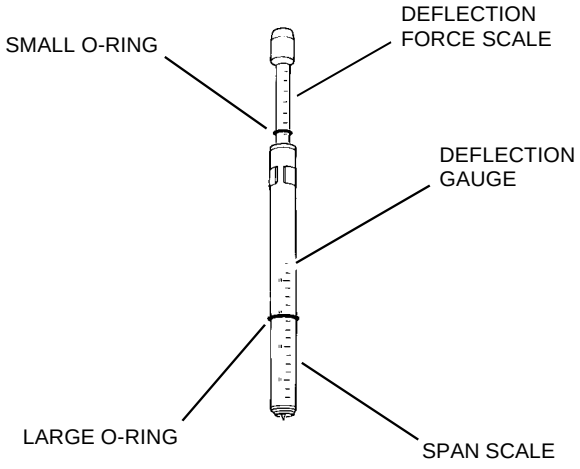
1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Inspect the vacuum generator drive belts for wear, stretching, and fraying. If you see any of these defects, on one or more belts, replace all four belts.
4. Measure the deflection of each of the four drive belts.
   a. Measure the span of the drive belts from the center of the motor pulley to the center of the vacuum generator pulley.
   b. On the belt deflection gauge, move the large O-ring to the centimeters/inches of span setting that you measured in step a.
   c. Move the small O-ring to zero on the deflection force scale.
   d. Put the span-scale-end of the deflection gauge onto the drive belt. The long axis of the gauge is perpendicular to the belt.
   e. Hold only the deflection-force-end of the gauge.



f. Push the gauge into the belt until the bottom of the large O-ring is level with the top of the other drive belts.

g. Move the tension gauge from the belt. The small O-ring should show a measurement of 3.3 kg (7.3 lb) deflection force for a new belt. The deflection force for a used belt should be 2.2 kg (4.9 lb).

h. Repeat steps a. through g. for each of the drive belts.



5. If the deflection force for each belt is not the same, inspect the vacuum motor to make sure it is square. If the motor is square, install new drive belts.

OR

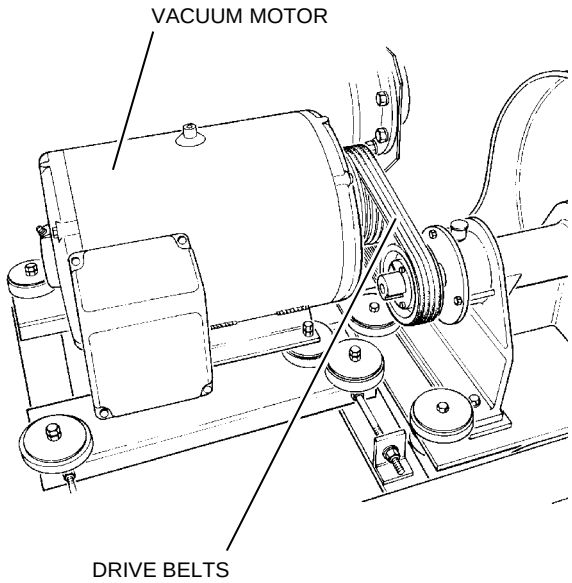
6. Adjust drive belt tension if all belts measure the same and the deflection force is different than as specified in step g.

OR

7. The belts are tensioned correctly if the deflection force for each is 3.3 kg (7.3 lb) for new belts and 2.2 kg (4.9 lb) for used belts.

8. Close the CTOT (page 4 -169).

9. Turn on the C-200B controller.



Adjust

WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Loosen all eight retaining nuts.

CAUTION: Make sure you move the adjusting nuts on both adjusting screws by the same amount. If you do not, you might misalign the vacuum motor.

4. Turn the adjusting nuts on both adjusting screws an equal amount to move the the vacuum motor.
   a. Move the motor away from the vacuum generator pulley to tighten the drive belts.

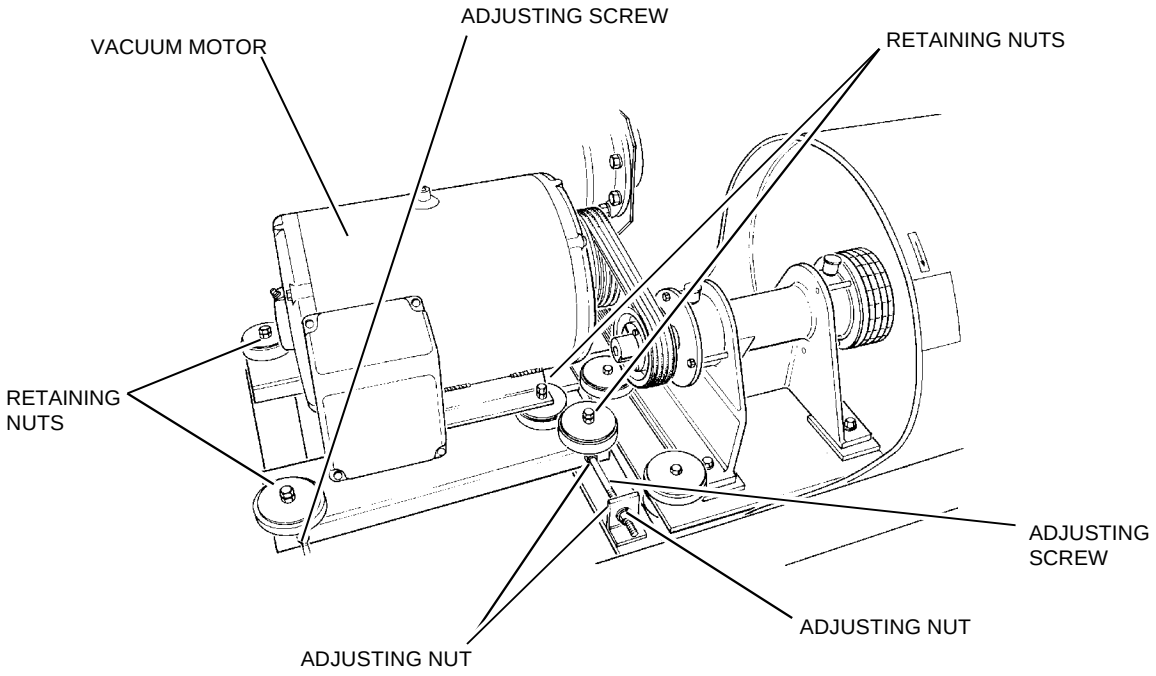
OR

   b. Move the motor towards the vacuum generator pulley to loosen the drive belts.

CAUTION: Do not move the motor while you are tightening the adjusting nuts. If you do, you will change the belt tension.

   c. On both adjusting screws, tighten all adjusting nuts by hand.

5. Measure the deflection of each of the drive belts.
   a. Measure the span of the drive belts from the center of the motor pulley to the center of the vacuum generator pulley.
   b. On the belt deflection gauge, move the large O-ring to the centimeters/inches of span setting that you measured in step a.
   c. Move the small O-ring to zero on the deflection force scale.



d. Put the span-scale-end of the deflection gauge onto the drive belt. The long axis of the gauge is perpendicular to the belt.

e. Hold only the deflection-force-end of the gauge.

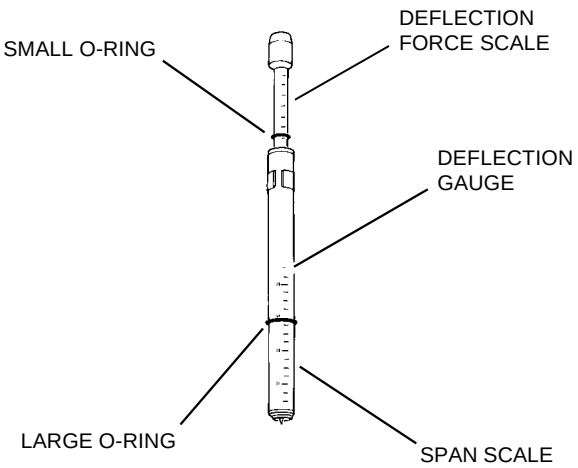
f. Push the gauge into the belt until the bottom of the large O-ring is level with the top of the other drive belts.

g. Move the tension gauge from the belt. The small O-ring should show a measurement of 3.3 kg (7.3 lb) deflection force for a new belt. The deflection force for an old belt should be 2.2 kg (4.9 lb).

6. Repeat steps a. through g. for each of the drive belts.

7. Repeat steps 4. through 6. until the drive belt tension is correct.

CAUTION: **Make sure the adjusting nuts are tight. Otherwise, the vacuum motor may vibrate out of position.**



CAUTION: **Do not move the motor while you are tightening the adjusting nuts. If you do, you must recheck the squareness of the vacuum motor.**

8. On each adjusting screw, tighten each adjusting nut with an open-end wrench until the nut stops moving.

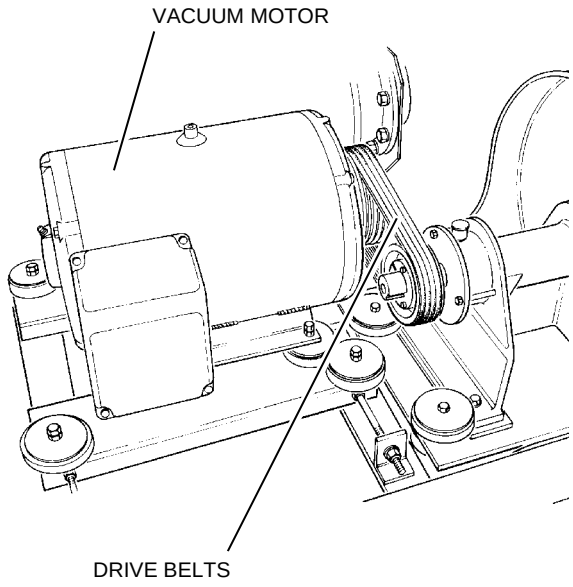
9. Tighten all of the retaining nuts to 11.3 Nm (100 in.lbs).

10. Inspect the vacuum motor drive belts again (page 4-151).

11. Inspect the vacuum motor (page 4-147).

12. Close the CTOT (page 4 -169).

13. Turn on the C-200B controller.



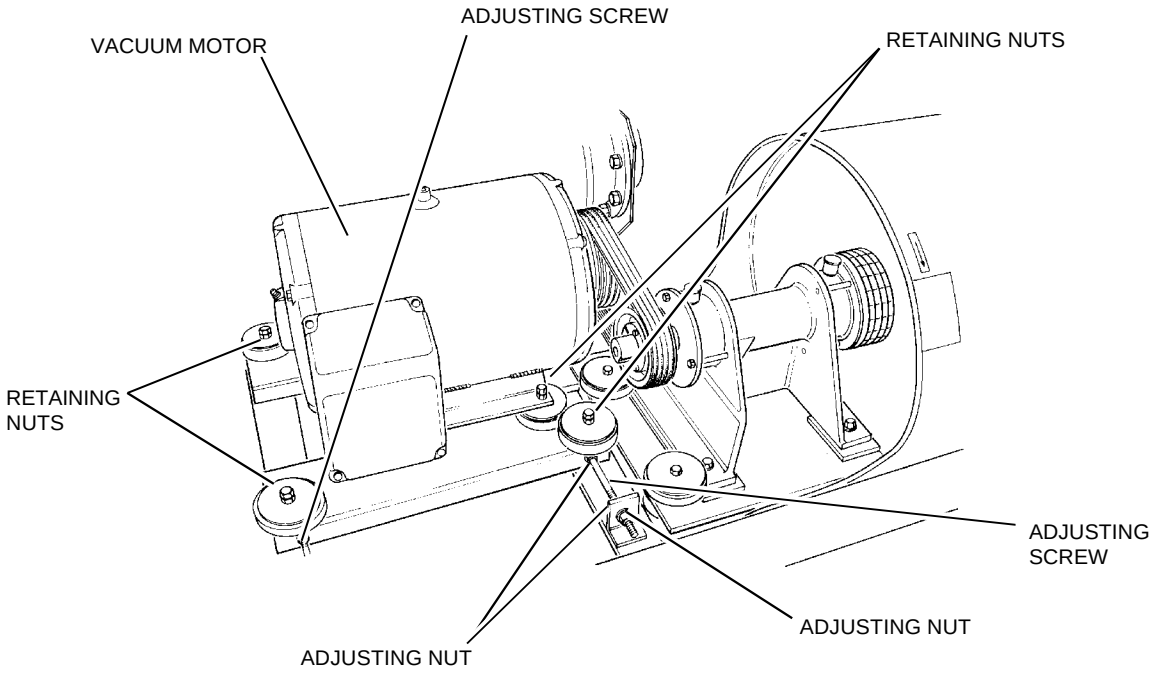
Remove

WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Loosen all eight retaining nuts.

CAUTION: Make sure you move the adjusting nuts on both adjusting screws by the same amount. If you do not, you might misalign the vacuum motor.

4. Turn the adjusting nuts on both adjusting screws an equal amount to move the the vacuum motor towards the vacuum generator pulley.
5. Move the motor until you can remove the drive belts from the pulley.



Install

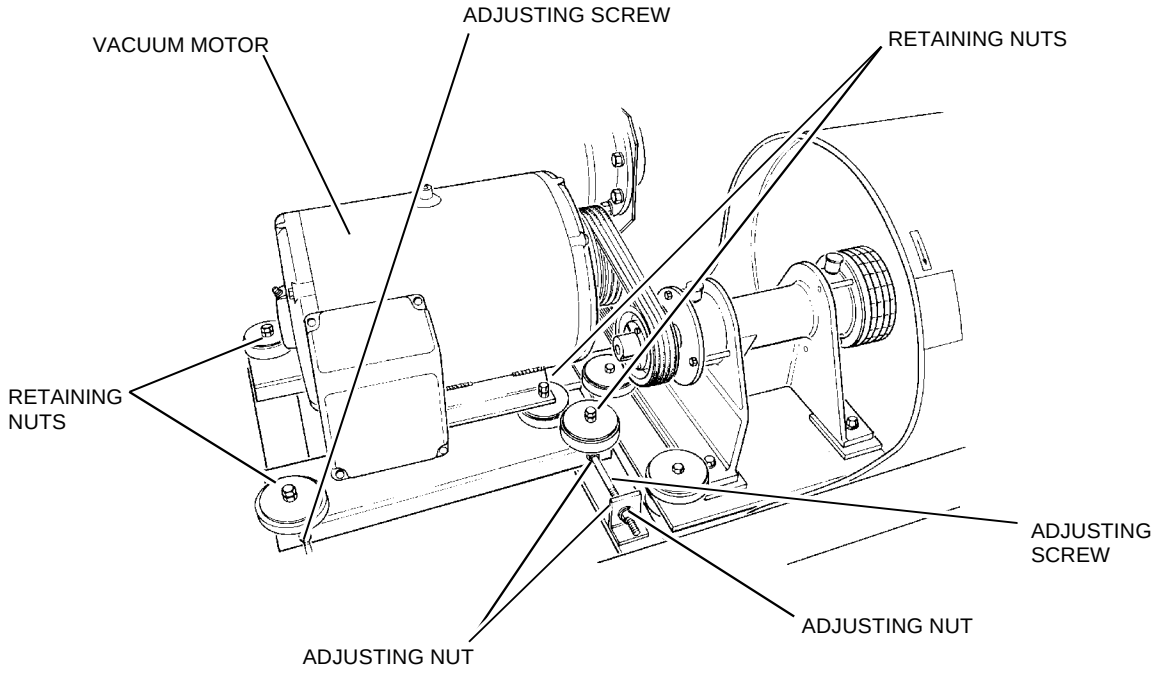
WARNING! Make sure the C-200B controller is turned off. Failure to do so may result in injury or death.

1. Put the vacuum generator drive belts onto their pulleys.
2. Adjust the drive belts (page 4-153).

CAUTION: Make sure the adjusting nuts are tight. Otherwise, the vacuum motor may vibrate out of position.

CAUTION: Do not move the motor while you are tightening the adjusting nuts. If you do, you must recheck the squareness of the vacuum motor.

3. On each adjusting screw, tighten each adjusting nut with an open-end wrench until the nut stops moving.
4. Tighten all of the retaining nuts to 11.3 Nm (100 in.lbs).
5. Inspect the vacuum generator motor to make sure it is square (page 4-147).
6. Close the CTOT (page 4 -169).
7. Turn on the C-200B controller.

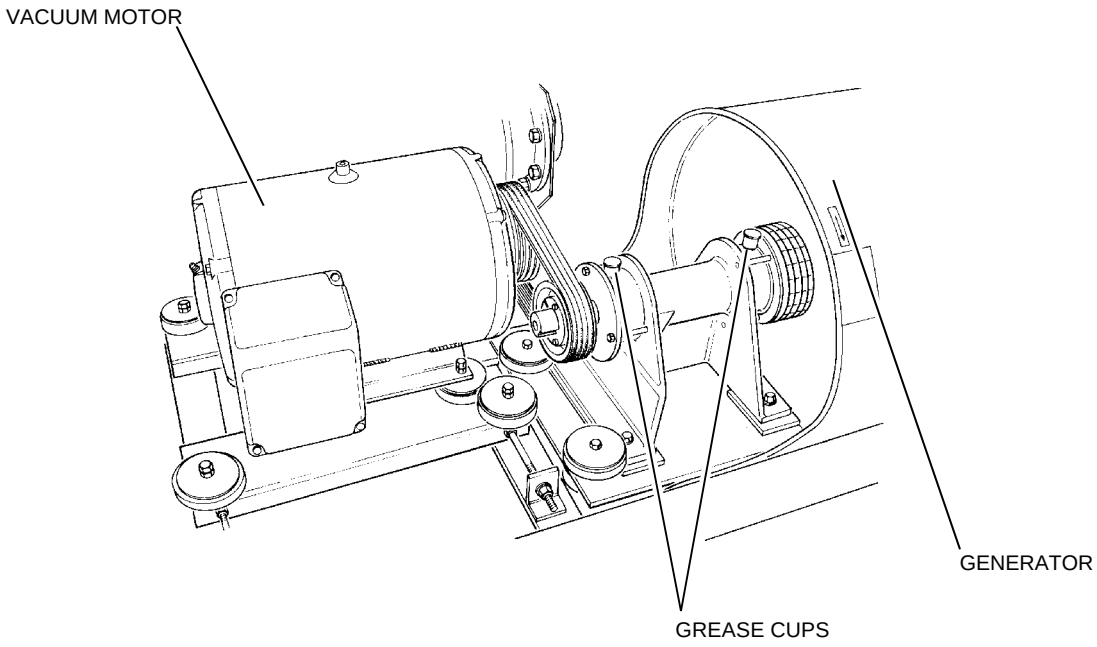


Vacuum Generator

Lubricate

> **WARNING! Before working in the controller electrics enclosure, turn off the C-200B controller. This turns off power to the controller electrics enclosure. Failure to turn off the C-200B controller may result in injury or death.**

1. Turn off the C-200B controller.
2. Open the CTOT (page 4-168).
3. Unscrew the cap from one grease cup.
4. Remove the old grease from the grease cup. Use a clean piece of steel rod or similar tool to do this.
5. Fill the cap of the grease cup with Chevron® SRI #2 grease.
6. Install the full cap back onto the grease cup.
7. Turn the cap clockwise by hand until it stops.
8. Remove the same cap and refill it with Chevron® SRI #2 grease.
9. Install the full cap back onto the grease cup.
10. Turn the cap clockwise until it stops.
11. Repeat steps 8. through 10. for the same cap.
12. Repeat steps 3. through 11. for the second grease cap.
13. Close the CTOT (page 4 -169).
14. Turn on the C-200B controller.



C-200B Controller

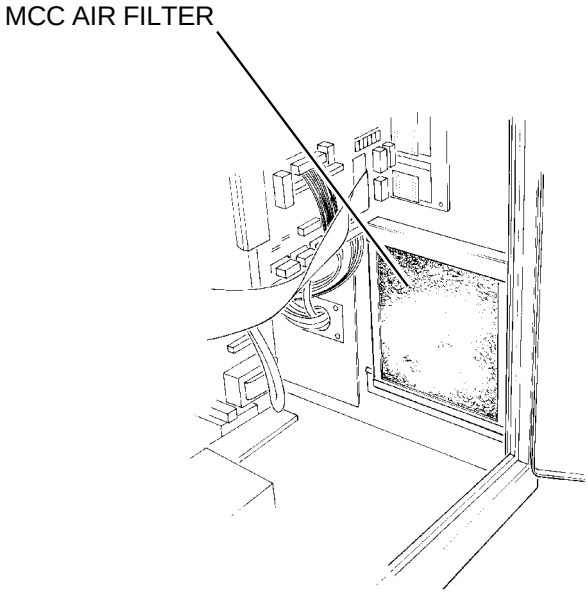
The C-200B controller is the command center of the GERBERcutter. Using its software, the C-200B tells the system how to cut material. The C-200B controller has two parts: the Front End Processor (FEP) and the Motion Control Computer (MCC). The FEP is located in the operator workstation. The MCC is located in the controller electrics enclosure.

MCC Air Filter

The MCC is cooled by air that flows through a filter and into the controller electrics enclosure. You must keep this filter clean and free from lint. If this filter is clogged, air flow over the MCC is reduced and the MCC may overheat.

Required Tools and Supplies

Item	GGT Part No.
MCC air filter	460500106
shop vacuum cleaner	N/A



Inspect

WARNING! Before working in the controller electrics enclosure, turn off the C-200B controller with circuit breaker 1. This turns off power to the controller electrics enclosure. Failure to turn off the C-200B controller may result in injury or death and damage to the C-200B controller.

1. Turn off the C-200B controller.
2. Open the controller electrics enclosure.

WARNING! Do not open or work in the C-200B vacuum electrics enclosure. Circuit breaker 1 does not turn off all power to the vacuum electrics enclosure. High voltages exist inside the C-200B vacuum electrics enclosure. These voltages can cause injury and death.

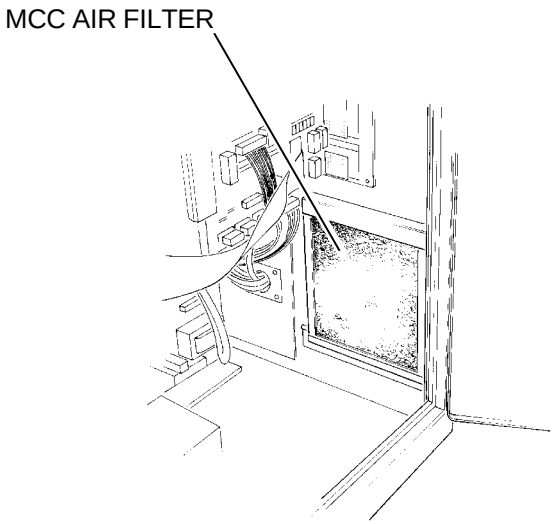
3. Inspect the filter for built-up lint. Clean it, if necessary.
4. Close the controller electrics enclosure.
5. Turn on the C-200B controller.

Clean

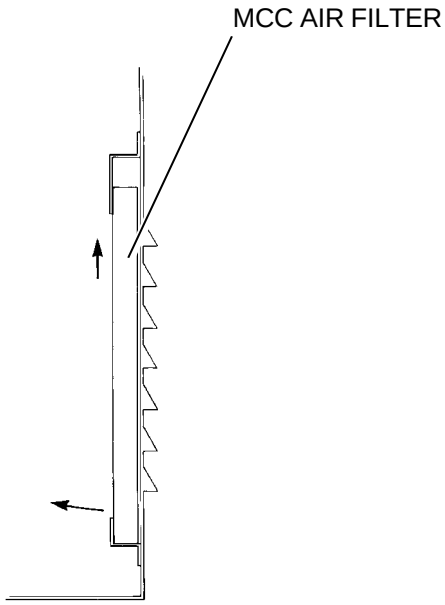
WARNING! Before working in the controller electrics enclosure, turn off the C-200B controller with circuit breaker 1. This turns off power to the controller electrics enclosure. Failure to turn off the C-200B controller may result in injury or death and damage to the C-200B controller.

1. Turn off the C-200B controller.
2. Open the controller electrics enclosure.

WARNING! Do not open or work in the C-200B vacuum electrics enclosure. Circuit breaker 1 does not turn off all power to the vacuum electrics enclosure. High voltages exist inside the C-200B vacuum electrics enclosure. These voltages can cause injury or death.



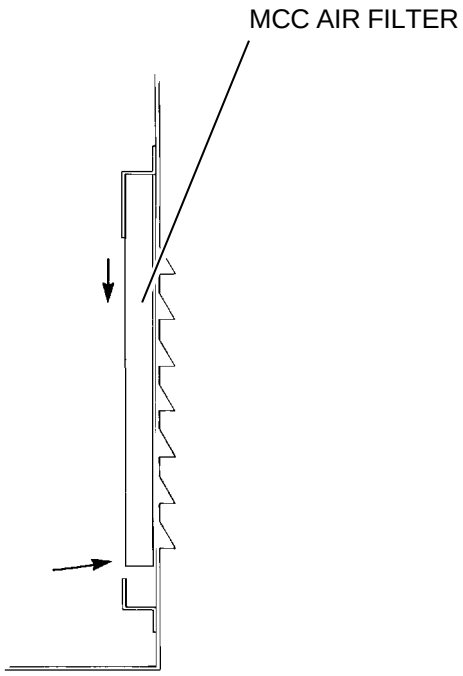
3. Inspect the filter for built-up lint. Clean it, if necessary.
4. Open the controller electrics enclosure.
5. Remove the dirty MCC air filter:
   a. Slide the filter up.
   b. Pull the bottom of the filter out of its bracket.
   c. Slide the filter down to remove it completely from the bracket.



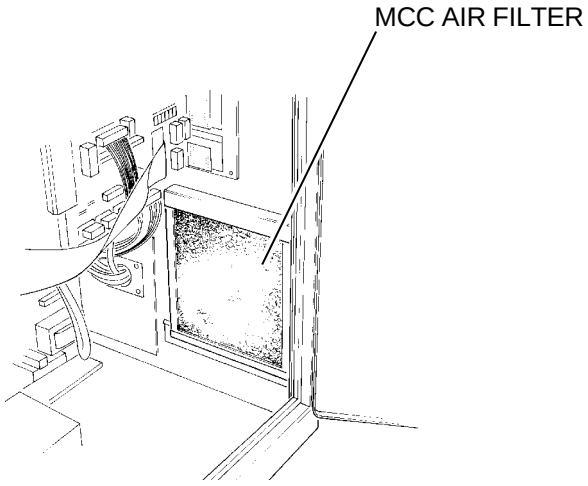
6. Vacuum the filter to remove any lint.

NOTE: If the filter is so plugged that you cannot clean it effectively, install a new filter.

7. Install the clean MCC air filter.
   a. Slide the filter up into the top of its bracket.
   b. Put the bottom of the filter flat against the side of the controller electrics enclosure.
   c. Slide the filter down into the bracket.



8. Close the controller electrics enclosure.
9. Install side panel 1 (page 4-131).
10. Turn on the C-200B controller.



Mast

The mast is a metal pole mounted on the right side of the cutting table (Figure 4-9). It provides a convenient attachment point for the cutting table's electrical and compressed air lines. On traveling tables, the mast houses a warning light that flashes when the cutting table moves.

Electrical and Air Lines

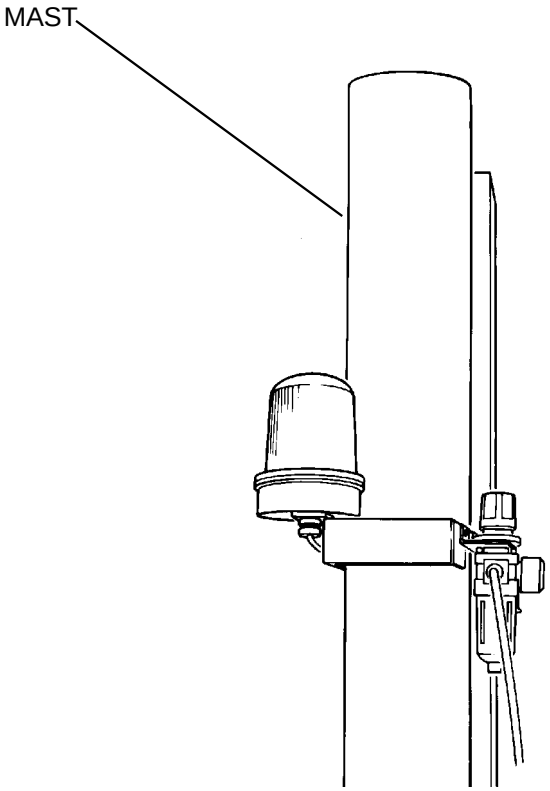
These lines provide the GERBERcutter with power and compressed air. On traveling tables, you should check them regularly for wear.

Required Tools and Supplies

Item	GGT Part No.
stool or short ladder	N/A

Inspect

1. Turn off the C-200B controller.
2. Check the electrical and compressed air lines where they enter the mast. They should be free of cuts, tears, and chafing.
3. If you see any of these defects, call your service technician.
4. Turn on the C-200B controller.



Warning Light

The warning light (Figure 4-9) is a safety device. It flashes to let you know that a traveling table is moving.

Required Tools and Supplies

Item	GGT Part No.
stool or short ladder	N/A

Inspect

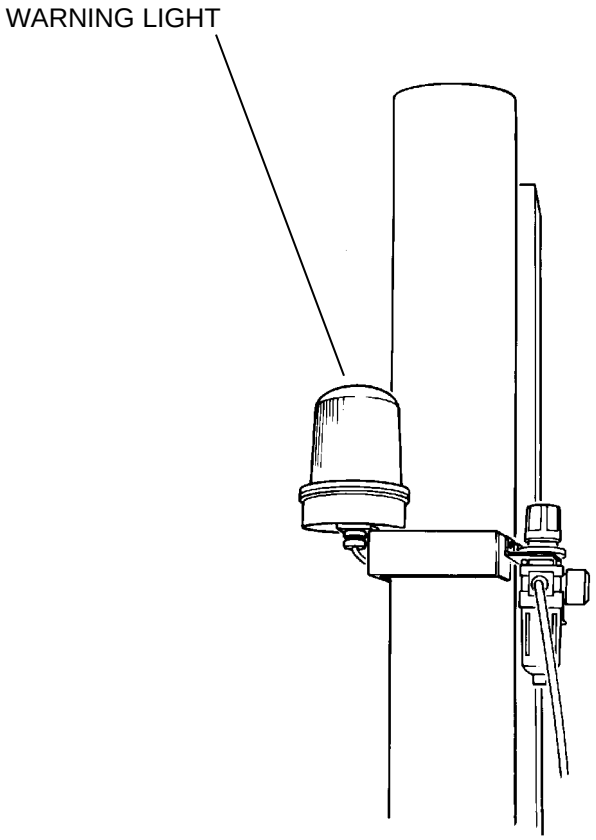
1. Turn on the C-200B controller and run the C-200B program.

NOTE: Traveling tables do not move unless the C-200B program is running.

2. Using the **TABLE MOVE** control, move the table a short distance in **FORWARD**. The warning light should flash.

3. Using the **TABLE MOVE** control, move the table a short distance in **REVERSE**. The warning light should flash.

4. If the warning light does not flash, call your service technician.



Film Dispenser

The film dispenser (Figure 4-1) holds a roll of plastic film. You use the plastic to seal the lay for proper vacuum during cutting.

Plastic Film Roll

The roll holds the plastic film. Replace it when the film is used up. You must periodically adjust two brackets on either side of the dispenser to allow it to work properly.

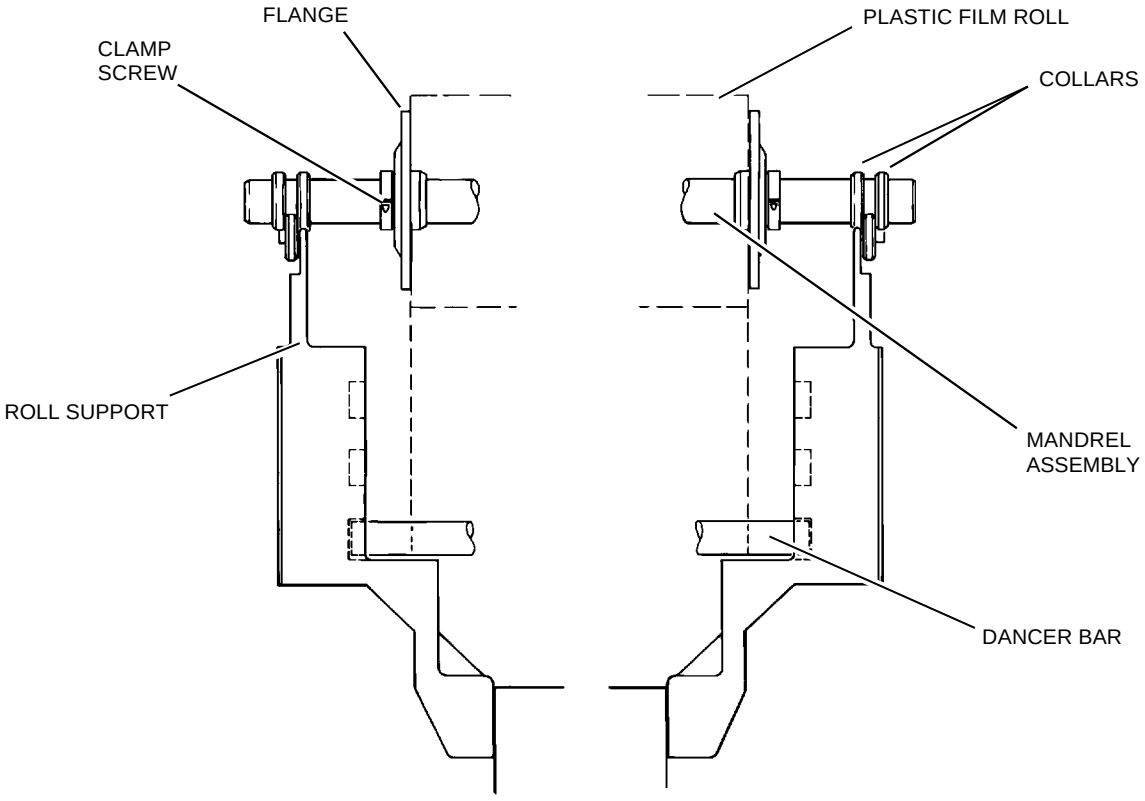
Required Tools and Supplies

Item	GGT Part No.
metric T-handle hex keys	945500089
plastic film roll 1.7m wide	644500106
plastic film roll 2.0m wide	644500256
plastic film roll 2.4m wide	644500263

WARNING! You will need the assistance of one person for this procedure. Failure to do this may cause severe injury to yourself and/or damage the equipment.

Remove

1. With an assistant, lift the mandrel assembly and film roll off the roll supports.
2. Loosen the clamp screw on the left flange.
3. Slide the flange off the assembly.
4. Slide the roll off the mandrel assembly.



Install

1. Slide the roll onto the mandrel assembly.

NOTE: Make sure the leading edge of the film faces the take-off end of the table.

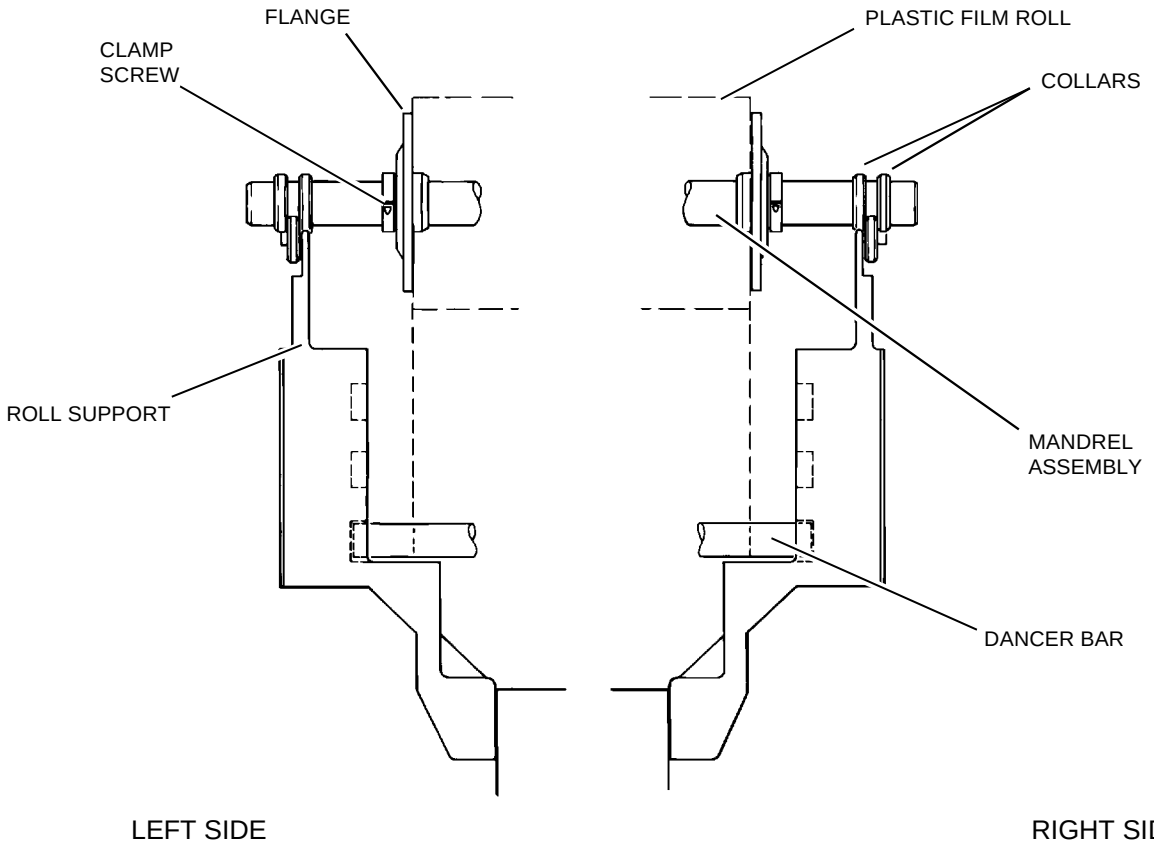
2. Slide the left flange onto the mandrel assembly.

3. Tighten the clamp screw on the flange.

4. Lower the mandrel assembly onto the supports. The collars must fit either side of the idlers on the right side of the table.

WARNING! Improper installation may cause the mandrel to slide out of the roll supports. This could injure people or damage equipment.

5. Thread the film through the dispenser.



Resealer (Optional)

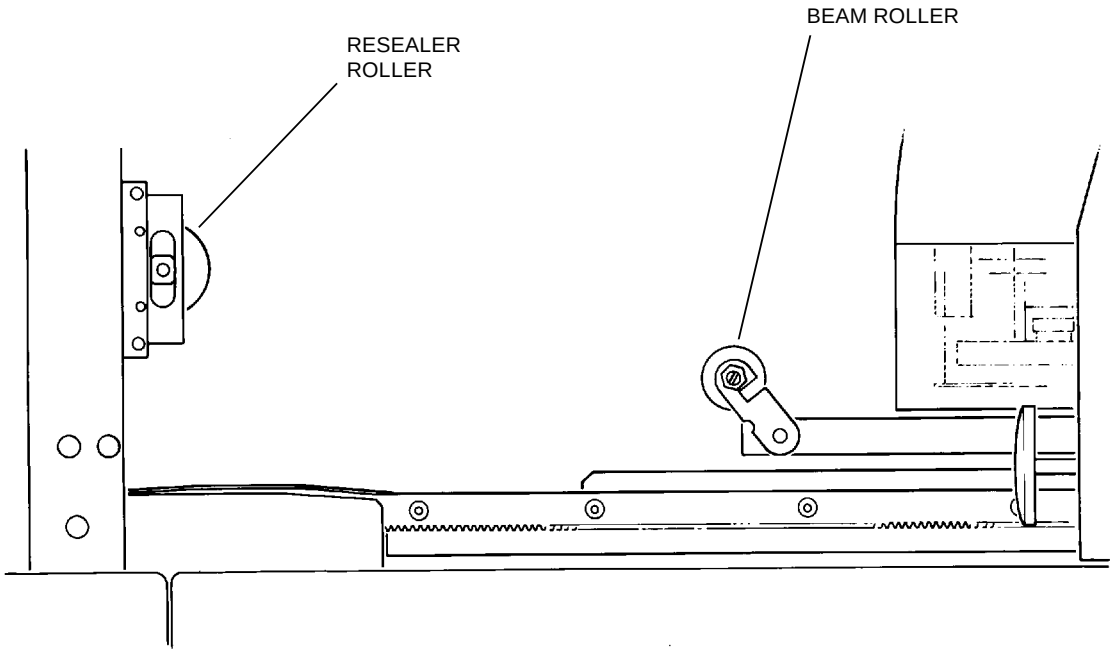
The resealer (Figure 4-1) attaches to the take-off end of the cutting table and the beam. It stretches a sheet of plastic film over the work surface during cutting. This plastic film covers and reseals the cut part of the lay to maintain vacuum. The plastic film is attached to two spring-loaded rollers that work like window shades. When the beam moves toward the take-on end, the rollers let out plastic film. When the beam moves toward the take-off end, the rollers take up the plastic film.

Plastic Film

The plastic film reseals the cut part of the lay as the GERBERcutter processes a cut file.

Required Tools and Supplies

Item	GGT Part No.
crescent wrench	N/A
masking tape	N/A
metric right-angle hex key set	945500079
plastic film 1.7 m wide	644500260
plastic film 2.0 m wide	644500261
plastic film 2.4 m wide	644500262

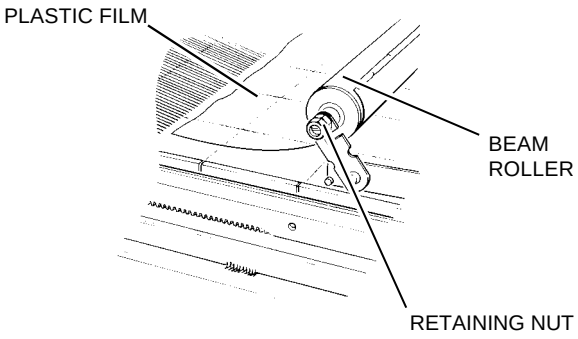


Inspect

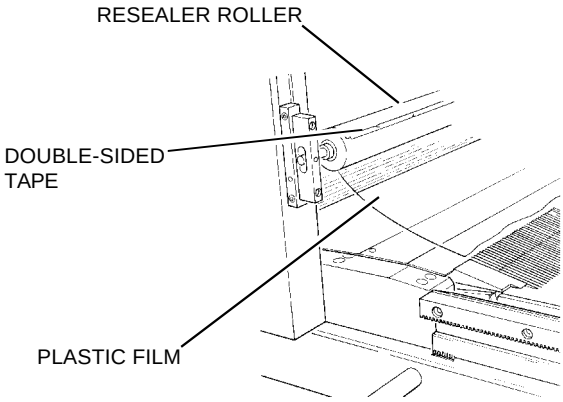
1. Turn on the C-200B controller.
2. Run the C-200B program.
3. Manually slew the beam to the take-on end of the cutting table. This unrolls the plastic film on the resealer.
4. Inspect the plastic film for tears, cracks, cuts, and brittle areas. Replace the plastic film, if necessary.
5. Exit the C-200B program.
6. Turn off the C-200B controller.

Remove

1. Turn on the C-200B controller.
2. Run the C-200B program.
3. Manually slew the beam to the take-off end of the cutting table. This rolls the plastic film onto the beam and resealer rollers.
4. Exit the C-200B program.
5. Turn off the C-200B controller.
6. Loosen the retaining nut from the left side of the beam roller. This removes tension from both rollers and lets the springs inside the rollers unwind.



7. Unroll the plastic film from the resealer roller.
8. Peel the end of the plastic film off the resealer roller. It is fastened with two-sided tape.



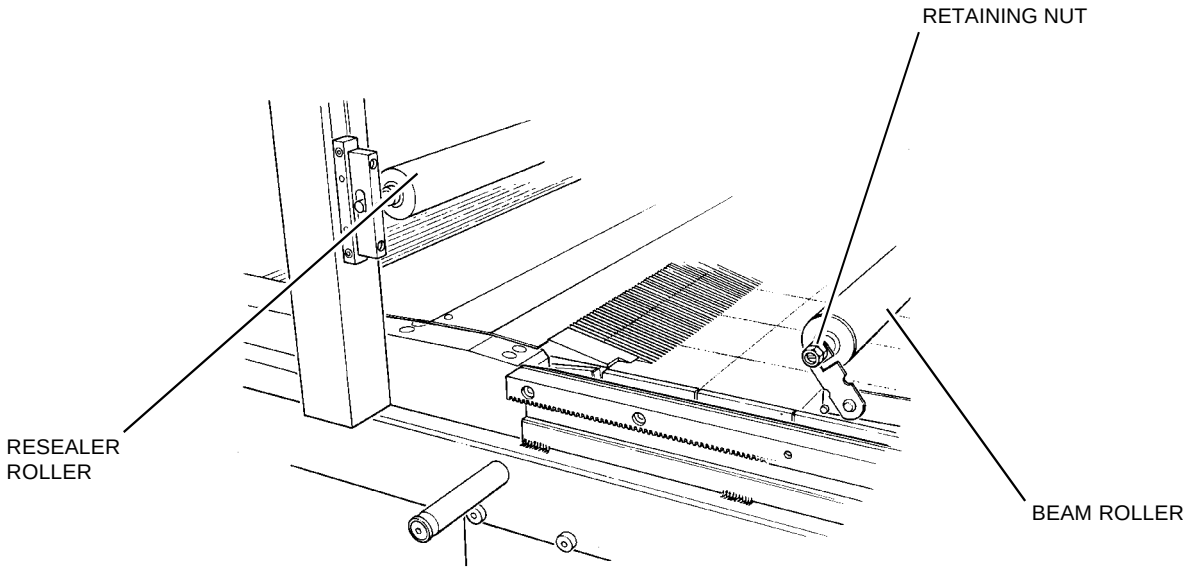
9. Remove the retaining nut from the left side of the beam roller.
10. Remove the beam roller from the trailing arms by pulling the beam roller towards the left side of your GERBERcutter.
11. Unroll the plastic film from the beam roller.
12. Peel the end of the plastic film off the beam roller. It is fastened with two-sided tape.

Install

NOTE: This procedure requires assistance from a second person.

1. Fasten one end of the plastic film to the two-sided tape on the resealer roller.
2. Fasten the other end of the plastic film to the two-sided tape on the beam roller.
3. Roll half the plastic film onto the resealer roller and half onto the beam roller.
4. Tension the beam roller.
   a. Have an assistant hold the beam roller and right shaft so they cannot turn.
   b. Wind the left shaft counterclockwise 16 turns. This tensions the rubber spring inside the roller.
   c. Slide the beam roller into position on the right side of the beam roller mounting bracket.
5. Install the retaining nut into the left side of the beam roller and its mounting bracket.
6. Tension the resealer roller.
   a. Have an assistant hold the beam roller and the resealer roller to keep them from moving.
   b. Use a crescent wrench to wind the left shaft clockwise 14 turns. This tensions the rubber spring.
   c. Tighten the set screw on the left clamp.
   d. Release the beam and resealer rollers.
7. Turn on the C-200B controller.

NOTE: These are initial settings that will need to be adjusted during use. If the plastic film tends to accumulate on the take-off roller, increase the number of turns on both rollers.



Conveyorized Take Off Table (Optional)

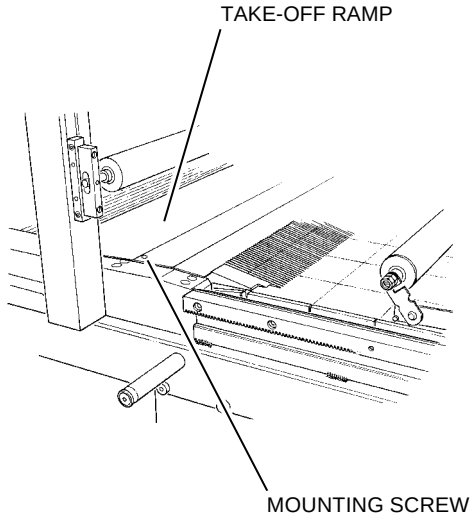
The conveyorized take off table (CTOT) attaches to the take-off end of the cutting table. The CTOT helps you more easily and quickly move material from the cutting table.

Required Tools and Supplies

Item	GGT Part No.
metric combination wrench set	945500093
metric T-handle hex key set	945500089
multipurpose grease	596500005
shop rag	N/A

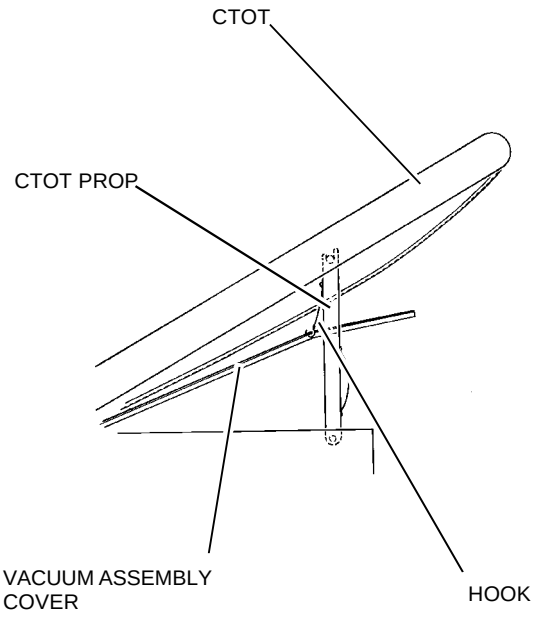
Open

1. Turn off the C-200B controller.
2. Remove the take-off ramp by removing the two mounting screws.



WARNING! The CTOT is heavy. Use two or three people to open the CTOT. Failure to use the necessary number of people may cause injury.

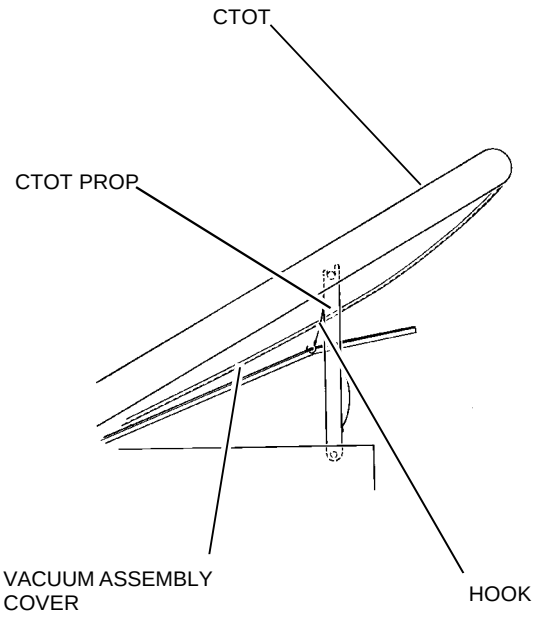
3. Lift the take-off end of the CTOT.
4. Hold the CTOT open.
5. Lift the CTOT props into place. The CTOT props are two hinged metal pieces that hold open the CTOT.
6. Lift the the vacuum assembly cover.
7. Attach the hooks to hold open the vacuum assembly cover.



Close

WARNING! The CTOT is heavy. Use two or three people to close the CTOT. Failure to use the necessary number of people may cause injury.

1. Remove the hooks from the vacuum assembly cover and lower the cover.
2. Lift the CTOT and vacuum assembly insulation up.
3. Hold the CTOT open.
4. Lower the CTOT props. The CTOT props are two hinged metal pieces that hold open the CTOT.
5. Lower the CTOT.
6. Install the take-off ramp by installing the two mounting screws.
7. Turn on the C-200B controller.



Drive Chain

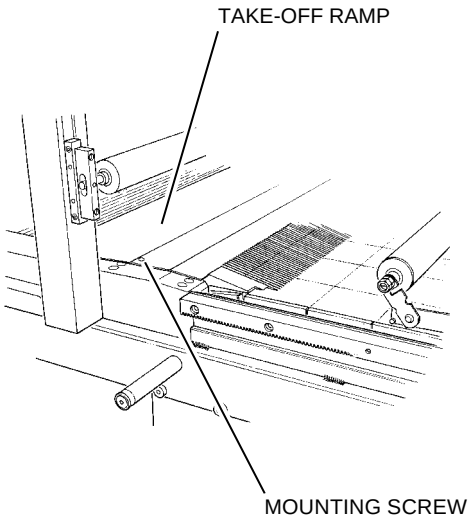
A drive chain, driven by an electric motor, turns the CTOT. the drive chain is located on the left side of the CTOT.

Lubricate

1. Turn off the C-200B controller.
2. Remove the take-off ramp by removing the two mounting screws. The drive chain is under the left side of the take-off ramp.

CAUTION: To avoid damage to the material, do not use too much grease. Moving equipment throws excess lubricant.

3. Lubricate the drive chain lightly with multipurpose grease.

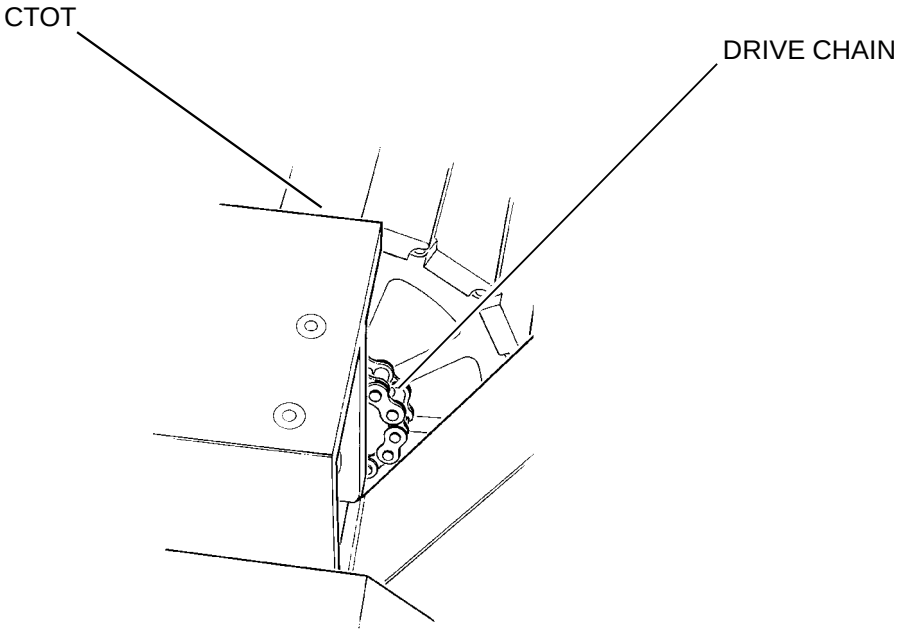


WARNING! Make sure that personnel stay away from the CTOT and the GERBERcutter while the power is on and the CTOT is moving. Failure to do so can result in injury.

4. Turn on the C-200B controller.
5. Move the CTOT conveyor through one-half a revolution.
6. Turn off the C-200B controller.

CAUTION: To avoid damage to the material, do not use too much grease. Moving equipment throws excess lubricant.

7. Lubricate the drive chain lightly with multipurpose grease.
8. Install the take-off ramp by installing the two mounting screws.
9. Turn on the C-200B controller.



Lateral Drive (Optional)

The optional lateral drive moves your GERBERcutter between several spreading tables.

Required Tools and Supplies

Item	GGT Part No.
grease gun	944233101
multipurpose grease	596500005
non-compressible cribbing	N/A
shop rag	N/A
two fork lift trucks	N/A

Lateral Drive Wheels

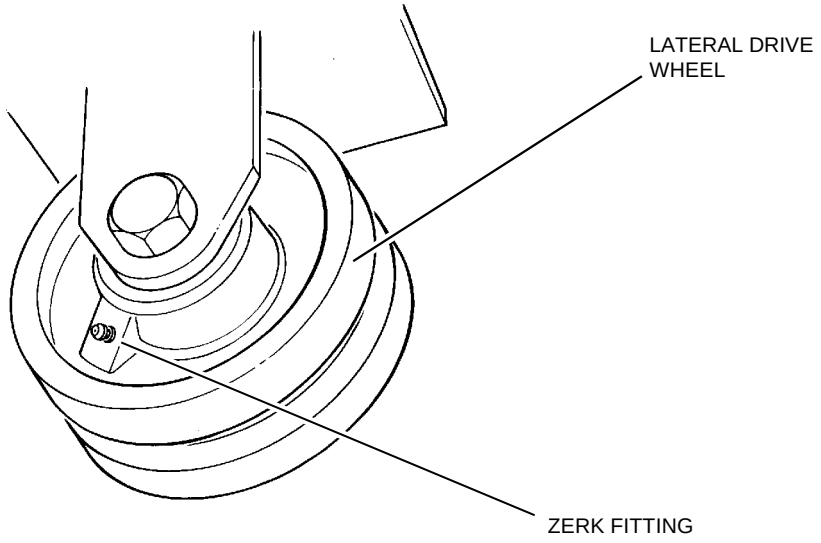
There are three wheels that your GERBERcutter rides on if you have the lateral drive option.

Lubricate

1. Turn off the C-200B controller.

WARNING! Make sure that all power is disconnected from your GERBERcutter before you do this maintenance. Failure to do so may result in injury or death.

2. Disconnect your GERBERcutter from all power sources.
3. Remove all loose items from your GERBERcutter.
4. Move all cables and obstructions away from your GERBERcutter.



WARNING! Each forklift that you use must be rated by its manufacturer to lift the total weight of your GERBERcutter including options. Failure to follow this precaution can result in injury or death.

5. Use at least two forklift trucks to lift your GERBERcutter. Lift your GERBERcutter at least three feet. Make sure that each forklift is rated to lift the weight of your GERBERcutter.

WARNING! Use only cribbing material that can support all the weight of your GERBERcutter including options.

6. Place non-compressible cribbing under the frame rails of your GERBERcutter. This prevents the GERBERcutter from falling.

WARNING! Do not remove either fork lift truck from under the GERBERcutter at any time while the GERBERcutter is off the floor. Failure to follow this precaution can result in injury or death.

7. Use the forklift trucks to lower your GERBERcutter onto the cribbing.

WARNING! Make sure that the GERBERcutter is held securely and safely off the floor before lubricating the lateral drive wheels. If you are unsure about the safety of the precautions taken, DO NOT perform this maintenance. Call your service technician if necessary.

8. Use the grease gun to lubricate each lateral drive wheel. Each wheel has a zerk fitting.

9. Use the shop rag to clean excess grease from the outside surface of the zerk fitting.

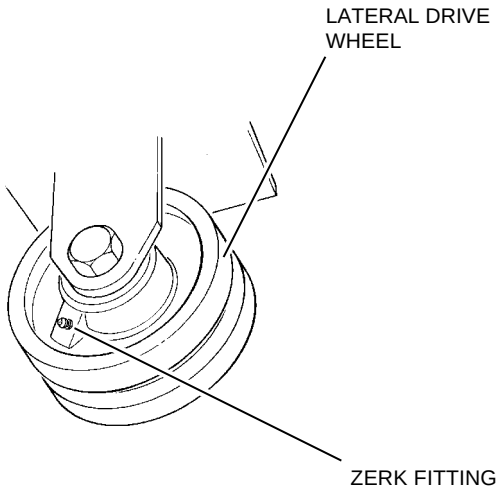
10. Use the forklift trucks to lift your GERBERcutter off the cribbing.

11. Remove the cribbing.

12. Use the forklift trucks to lower your GERBERcutter onto its track.

13. Connect your GERBERcutter to power.

14. Turn on the C-200B controller.



Chapter 5 Glossary

5

About this Chapter This chapter lists and defines important concepts found in this manual.

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axis An imaginary line used to describe movement and location on the cutting table. The GERBERcutter has three axes: X, Y, and C.

backlash The space between two gears or a gear and its rack.

beam control panel (BCP) A terminal that lets you control the cutter head and beam assembly from the cutting table.

bite feeding A feature that matches cutter head movement with conveyor movement, permitting automatic cutting of a long lay of material. The lay is cut in sections. Each section is called a bite.

BRISTLE SQUARE Squares of molded bristle that plug into the conveyor slats. They form a work surface for cutting material.

C-200B controller The command center of the GERBERcutter.

C-axis An imaginary straight line that the knife rotates about.

circuit breaker A switch that automatically interrupts an electric circuit.

command A request entered at a terminal to perform a function.

command line The place where your computer monitor displays the keyboard entries that you type.

CONFIG file See configuration file.

configuration file A configuration file (also called a CONFIG file) is a computer data file that sets up the system in a particular way, depending on what materials you are cutting.

conveyor Moving work surface made from aluminum slats and covered with Gerber BRISTLE SQUARES.

cursor A pointer that you see on the monitor screen of your operator workstation. Use the trackball to move the cursor.

cut file A computer data file that tells the GERBERcutter how to cut particular patterns (a marker) out of a lay of material.

data Information stored on a disk.

default A setting that is programmed into the computer at the factory. This is used until you override it by selecting another setting.

downloading Transmitting a file or program from a central computer to another computer (that is, from the FEP to the MCC).

drill An optional unit that attaches to the cutter head for making drill hole marks.

dry haul The distance traveled with the knife out of the fabric.

dry run To execute a cut file without plunging the knife or drill.

emergency stop (ESTOP) A red push button that immediately stops all GERBERcutter motion.

Energy Saving Mode (ESM) A vacuum feature that reduces vacuum to the cutting table when the cutter has been idle for a certain period of time.

floppy disk A computer data storage medium made of plastic covered with a magnetic coating.

floppy disk drive A device that lets a computer read and write data on a floppy disk.

front end processor (FEP) A computer in the operator workstation that relays your commands, cut file data, and configuration file data to the Motion Control Computer for processing.

hard disk drive A computer data storage device that holds the software that runs the GERBERcutter. A hard disk drive can store much more data than a floppy disk.

hardware Physical elements of the computer, such as the monitor and keyboard.

heel cut Cut made by the heel of the knife. The heel is the thickest edge (following edge) of the knife blade.

initialize To set the cutting table's (0, 0) coordinate after downloading the C-200B software. The system uses this coordinate as a reference when processing a cut file.

keyboard A device with keys, like those on a typewriter, that lets you enter data and communicate with the C-200B.

lateral drive A table option. The cutting table can travel from one spreading table to another without stopping.

left side The left side of the table when you are standing at the take-on side of the table.

limit switch A switch that sets boundaries (limits) for cutter head or beam travel on the work surface of the cutting table. Limit switches also tell the C-200B when the cutter head reaches the (0, 0) coordinate when you initialize the system.

marker See cut file.

monitor A device like a television that receives computer video signals and displays information on the screen.

motion control computer (MCC) A computer that responds to instructions sent from the front end processor to control cutting table motion.

network A set of computers connected together.

network file server Provides a central database for computer networks.

parameter A setting defined in a configuration file.

printer A device for putting computer data onto paper.

program A set of instructions for a computer to execute. The programs that direct a computer are called software.

right side The right side of the cutting table as seen from the take-on end.

Run Time Biting A utility that bites the marker just before the GERBERcutter processes it.

servomotor An electric motor used to move the beam along the X-axis and the cutter head along the Y-axis of the cutting table.

software Set of computer programs the C-200B uses to run the GERBERcutter and communicate with you.

static mode biting A method of biting in which each bite has the same length. In this method, some pieces are split between bites.

take-off end The end of the cutting table where material leaves after being cut.

take-on end The end of the cutting table that receives material for cutting.

Time Management Reporting (TMR) An optional package that helps you judge how well you are using your GERBERcutter.

utility A program that helps you operate the computer.

vacuum gauge Measures table vacuum. The vacuum pressure is displayed on the Status Screen.

vacuum generator The unit that makes vacuum. Vacuum holds material to the table work surface during cutting.

vacuum level control A vacuum feature that increases or reduces table vacuum depending on the current cutter mode (idle, bite, or cut).

variable length biting A method of biting a marker so that pieces are not split between bites.

X-axis A horizontal reference line in a coordinate system. The X-axis is the length of the table, from the take-on end to the take-off end.

Y-axis A vertical reference line in a coordinate system. The Y-axis is the width of the table, from the left side to the right side.

zoned vacuum A vacuum feature that applies vacuum to a certain area of the cutting table. The cutting table is divided into five more zones. Vacuum can be applied to one, two, or three zones at a time depending on the pieces being cut.

Appendix A
Vacuum Features

A

About This Chapter

This chapter describes each of the three optional vacuum features for the S-5200 and S-7200 GERBERcutter. The topics included in this section are:

- How vacuum works
- Vacuum zoning
- CPI low vacuum feature
- Energy saving mode
- Low vacuum messages

How Vacuum Works

The vacuum generator plays a critical part in the cutting process. It makes a vacuum that holds the material firmly on the work surface during cutting. The vacuum generator is under the take-off end of the cutting table. The vacuum generator draws air through the BRISTLE SQUARES into the conveyor slats. From the slats, the air goes through a manifold and a filter, into the vacuum generator, and out the silencer in the exhaust stack (Figure A-1).

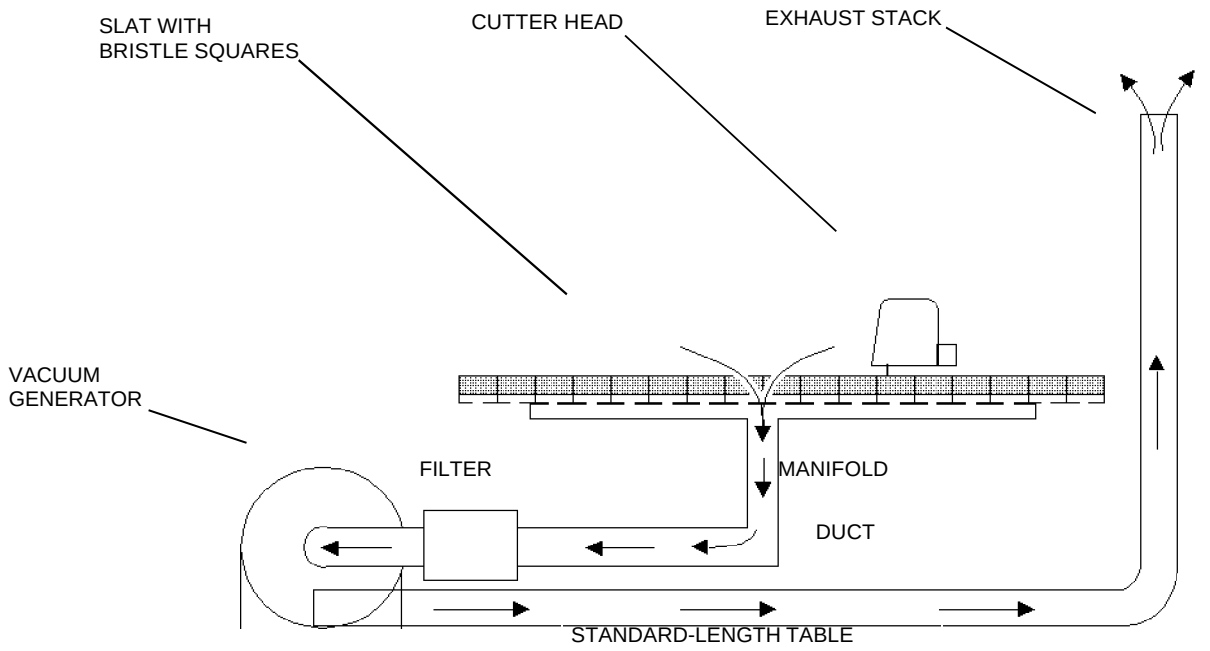

Figure A-1. Cutting Table Vacuum

There are three available GERBERcutter vacuum features that let you control where and when vacuum is applied. You can use one, two, or all of these features, in various combinations. If more than one feature is turned on, they act interrelatedly.

To use these vacuum features, your service representative turns on the option and you set up certain parameters in the configuration file. You can temporarily enable/disable two of the features. Table A-1 summarizes this information. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for information about configuration parameters and two-letter commands.

Table A-1. List of Vacuum Features

Feature Name	What It Controls	Configuration Parameters	Parameter Change and Display Menu Category
Vacuum Zoning (optional)	Where vacuum is applied	Vacuum Zoning Vacuum Zone Overlap	Vacuum System
Energy Saving Mode	When vacuum is applied	Energy Saving Mode Time Until ESM	Options & Modes
Cut Path Intelligence Vacuum Feature (optional)	Feedrate if vacuum is at caution level	PI: FR Slowdown - Low Vac	Path Intelligence

Vacuum Zoning

The optional **vacuum zoning** feature improves cut quality and lowers power use. This feature applies vacuum where it is needed most — the area being cut. In zoned vacuum, the cutting table is divided into five zones (six on optional long tables). Each zone receives vacuum from a duct that can be opened or closed automatically with a butterfly valve. Each butterfly valve is closed unless the cutter head is in its zone. When the cutter head enters a zone, the butterfly valve opens, applying vacuum to the area being cut.

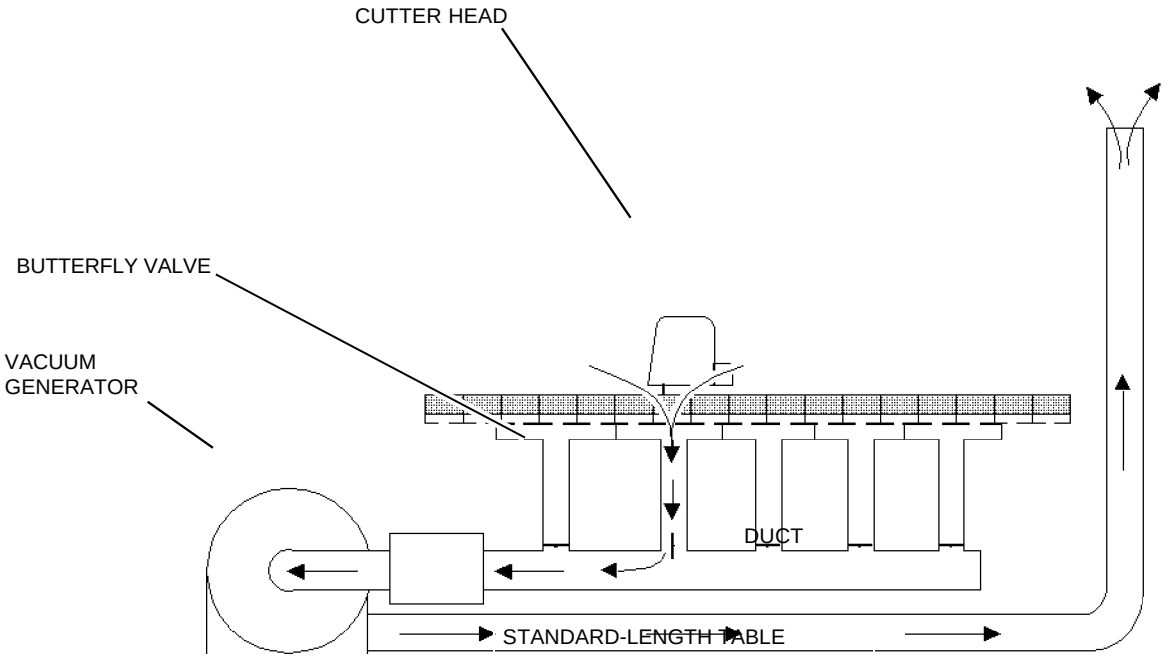

Figure A-2. Cutting Table Air Flow with Vacuum Zoning

If you turn off vacuum zoning (disable it), the GERBERcutter applies vacuum to the entire cutting table surface. You may want to disable vacuum zoning if you need consistent vacuum to prevent slippage. For example, you may want to disable zoning when cutting high ply spreads of slippery material.

The GERBERcutter applies vacuum in one to three zones at a time: the zone in which the cutter head is currently cutting and one or two "look-ahead" zones. The purpose of the look-ahead zones is to ensure consistent vacuum during cutting.

The GERBERcutter calculates look-ahead zones in several different ways. Figure A-3 illustrates these methods.

Look-Ahead Zones. When the GERBERcutter looks at the marker and sees that the cutter head will be in the next zone within a certain period of time (about 0.25 seconds), the GERBERcutter applies vacuum to that zone. For example, in Figure A-3, when the system cuts Piece 2, it will turn on vacuum to both Zones 1 and 2.

When the GERBERcutter looks at the marker and sees that the cutter will be zigzagging between the same two zones, it will apply vacuum to both zones instead of continually turning them on and off. For example, in Figure A-3, when the system is cutting Piece 5, it will apply vacuum to both Zones 1 and 2.

When the cutter head is cutting a piece close to the next zone, it will apply vacuum to that zone. It does this even though it will not be moving into the next zone. For example, in Figure A-3, when the system is cutting Piece 8, it will apply vacuum to both Zones 2 and 3 even though the cutter head will not cut in Zone 3.

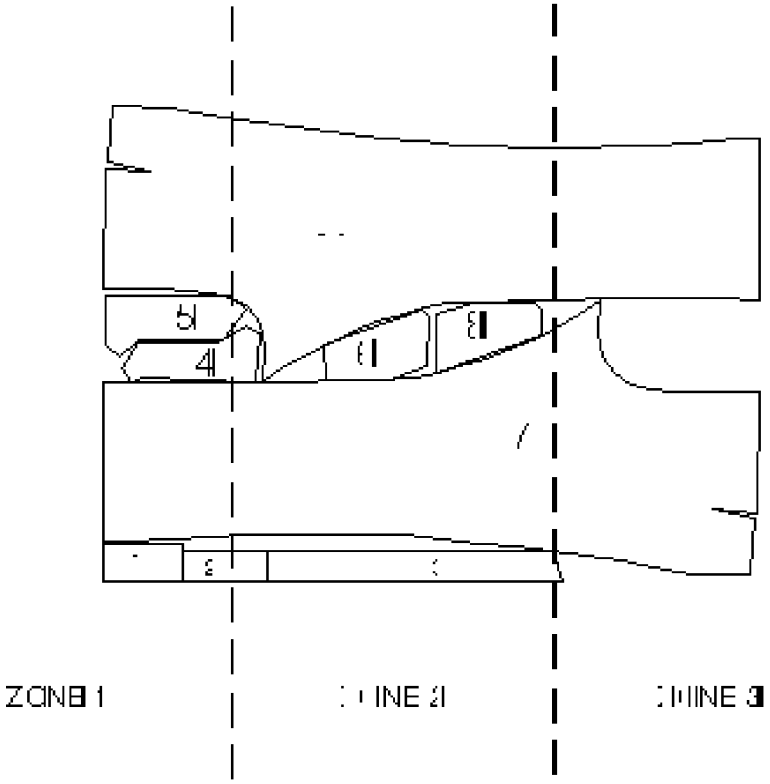

Figure A-3. Marker with Look-Ahead Zones

Configuration Setup. To use vacuum zoning, set up two parameters in the configuration file:

- Vacuum Zoning = ENABLE.
- Vacuum Zone Overlap = number of centimeters (inches). If the cutter head is within this distance of the next zone, the S-7200 applies vacuum to that next zone even if the cutter head is not going to cut in that zone.

Temporary Enable/Disable. To temporarily turn this feature on or off, use the Display or Change Parameters menu (PM). Select the **Vacuum System** category and set up the vacuum zoning parameter:

- Vacuum Zoning = ENABLE/DISABLE

Energy Saving Mode

The **energy saving mode (ESM)** greatly reduces table vacuum when the GERBERcutter is idle for a certain period of time. The system displays a warning message on the operator screen thirty seconds before ESM goes into effect.

ESM reduces energy consumption in two ways. First, since ESM automatically sets vacuum requirements, the operator does not need to remember when to lower vacuum to the table. Secondly, ESM reduces vacuum without turning off the vacuum generator. Instead, it opens and closes the vacuum zone valves. This method uses less energy than turning the motor on and off.

ESM goes into effect when these three conditions are met:

- the vacuum generator is on
- no marker is being processed
- the beam, head, and conveyor are idle for a certain period of time (defined in the configuration file)

Configuration Setup. To use energy saving mode, set up two parameters in the configuration file:

- Energy Saving Mode = ENABLE.
- Time Until ESM = the number of seconds the system is idle before ESM goes into effect. The operator sees a warning message 30 seconds before ESM starts.

Temporary Enable/Disable. To temporarily turn this feature on or off, use the Display or Change Parameters menu (PM). Select the **Options & Modes** category and set up the energy savings mode parameter:

- Energy Savings Mode = ENABLE/DISABLE.

Low Vacuum Messages

The GERBERcutter has two messages which indicate vacuum is too low for cutting:

- The **Vacuum Low Caution** message warns you that vacuum is dangerously low. If you have Cut Path Intelligence (CPI) low vacuum feature turned on when the vacuum is at caution level, the feedrate of the marker slows by a configurable amount. (For more information, see Cut Path Intelligence Vacuum Feature, on page A-8 .) If this CPI feature is not turned on, you must either increase vacuum or stop cutting.
- The **Vacuum Low Error** message causes the cutter to stop cutting until proper vacuum is resumed.

Configuration Setup. Two parameters in the configuration file define the vacuum level at which these messages go into effect.

- Vacuum Low Caution Level = vacuum level below which the GERBERcutter displays the caution message.
- Vacuum Low Error Level = vacuum level below which the GERBERcutter displays the error message and halts the cutting process.

Cut Path Intelligence Vacuum Feature

The optional Cut Path Intelligence (CPI) vacuum feature slows the feedrate of your marker if table vacuum is at caution level. To use this feature, you must first set the **Vacuum Low Caution Level** in your configuration file (see page A-7).

Configuration Setup. To use the Cut Path Intelligence low vacuum feature, set up the configuration file parameter:

- PI: FR Slowdown - Low Vac = ON/OFF

Temporary Enable/Disable. To temporarily turn this feature on or off, use the Display or Change Parameters menu (PM). Select the **Path Intelligence** category and set up the CPI vacuum feature parameter:

- PI: FR Slowdown - Low Vac = ON/OFF

Appendix B Cutting Problems

B

About This Chapter

This section lists common cutting problems and possible solutions. These problems are usually caused by incorrect settings or poor maintenance.

Fusing

If the material you are cutting is fusing (sticking together from too much heat and pressure):

1. Check this setting if fabric is fusing at corners and notches:

   a. minimum/dry haul knife speed (decrease slightly)

   OR

2. Check these settings if fabric is fusing while cutting straight lines:

   a. maximum/cut knife speed (decrease slightly)

   b. cutting speed (increase slightly)

   NOTE: Increasing the cutting speed can make the cutter head push pieces.

3. Check that the knife is sharp and the grinding stones are in good condition.

4. Decrease the height of the lay.

Pieces Move While Being Cut

If the pieces are moving on the table when you are trying to cut them:

1. Check vacuum level to be sure it is sufficient for your application.

2. Check these settings:

    a. minimum/dry haul and maximum/cut knife speeds (increase slightly).

    b. cutting speed (decrease slightly).

NOTE: Decreasing the cutting speed can cause fusing.

3. Check that the knife is sharp and the grinding stones are in good condition.

4. Check that the presser foot bowl is placing enough pressure on the material to hold it in place.

Wavy or Scalloped Edges On Cut Pieces

If the pieces you are cutting have wavy or scalloped edges:

1. Check that there is enough vacuum for your application.

2. Check these settings:

    a. knife minimum/dry haul and maximum/cut speeds (increase slightly).

    b. cutting speed (decrease slightly).

NOTE: Decreasing the cutting speed can cause fusing.

3. Check C-axis alignment with the Check Yaw in X and Check Yaw in Y diagnostics.

4. Check that the knife is sharp and the grinding stones are in good condition.

5. Lower the height of the lay.

6. Check that the presser foot bowl is placing enough pressure on the material to hold it in place.

Undersized or Oversized Pieces

If the pieces you are cutting are smaller or larger than they should be:

1. Verify that the Set Data Scale Factors setting is proper for your application.

2. Check C-axis alignment with the Check Yaw in X and Check Yaw in Y diagnostics.

3. Check the X-axis and Y-axis step size. (Call Service.)

Cut Pieces Do Not Clean Out

If the pieces you are cutting do not clean out (threads remain uncut):

1. Check the heel cut. If there is not enough heel cut, decrease the Advance Before Plunge and Corner Advance Before Plunge settings in the CONFIG file.

   NOTE: For most applications, you should set the Advance Before Plunge and Corner Advance Before Plunge to the same values.

2. Check the overcut. If there is not enough overcut, increase the Overcut Distance and Corner Overcut settings in the CONFIG file.

   NOTE: For most applications, you should set the Overcut Distance and Corner Overcut to the same values.

3. Check these settings:

   a. knife speed (increase slightly)

   b. cutting speed (decrease slightly)

   NOTE: Decreasing the cutting speed may cause fusing.

4. Make sure the knife is sharp and the grinding stones are in good condition.

5. Make sure the knife is not bent.

6. Check C-axis alignment with Check Yaw in X and Check Yaw in Y diagnostics.

Skewed Parts

If the pieces you are cutting are skewed (not shaped correctly):

1. Check the beam for squareness. See the *C-200B Software User's Guide* (GGT P/N: 075784000) for more information on checking that the beam is square.

2. Verify that the Data Scale factor settings in the CONFIG file is proper for your application.

Index

I

T

U

V

W

X

Y

Z