



Haas Automation, Inc.

Haas Bar Feeder

Operator's Manual Supplement

96-8913

Revision H

December 2018

English

Original Instructions

Haas Automation Inc.
2800 Sturgis Road
Oxnard, CA 93030-8933
U.S.A. | HaasCNC.com

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LIMITED WARRANTY CERTIFICATE

Haas Automation, Inc.

Covering Haas Automation, Inc. CNC Equipment

Effective September 1, 2010

Haas Automation Inc. ("Haas" or "Manufacturer") provides a limited warranty on all new mills, turning centers, and rotary machines (collectively, "CNC Machines") and their components (except those listed below under Limits and Exclusions of Warranty) ("Components") that are manufactured by Haas and sold by Haas or its authorized distributors as set forth in this Certificate. The warranty set forth in this Certificate is a limited warranty, it is the only warranty by Manufacturer, and is subject to the terms and conditions of this Certificate.

Limited Warranty Coverage

Each CNC Machine and its Components (collectively, "Haas Products") are warranted by Manufacturer against defects in material and workmanship. This warranty is provided only to an end-user of the CNC Machine (a "Customer"). The period of this limited warranty is one (1) year. The warranty period commences on the date the CNC Machine is installed at the Customer's facility. Customer may purchase an extension of the warranty period from an authorized Haas distributor (a "Warranty Extension"), any time during the first year of ownership.

Repair or Replacement Only

Manufacturer's sole liability, and Customer's exclusive remedy under this warranty, with respect to any and all Haas products, shall be limited to repairing or replacing, at the discretion of the Manufacturer, the defective Haas product.

Disclaimer of Warranty

This warranty is Manufacturer's sole and exclusive warranty, and is in lieu of all other warranties of whatever kind or nature, express or implied, written or oral, including, but not limited to, any implied warranty of merchantability, implied warranty of fitness for a particular purpose, or other warranty of quality or performance or noninfringement. All such other warranties of whatever kind are hereby disclaimed by Manufacturer and waived by Customer.

Limits and Exclusions of Warranty

Components subject to wear during normal use and over time, including, but not limited to, paint, window finish and condition, light bulbs, seals, wipers, gaskets, chip removal system (e.g., augers, chip chutes), belts, filters, door rollers, tool changer fingers, etc., are excluded from this warranty. Manufacturer's specified maintenance procedures must be adhered to and recorded in order to maintain this warranty. This warranty is void if Manufacturer determines that (i) any Haas Product was subjected to mishandling, misuse, abuse, neglect, accident, improper installation, improper maintenance, improper storage, or improper operation or application, including the use of improper coolants or other fluids, (ii) any Haas Product was improperly repaired or serviced by Customer, an unauthorized service technician, or other unauthorized person, (iii) Customer or any person makes or attempts to make any modification to any Haas Product without the prior written authorization of Manufacturer, and/or (iv) any Haas Product was used for any non-commercial use (such as personal or household use). This warranty does not cover damage or defect due to an external influence or matters beyond the reasonable control of Manufacturer, including, but not limited to, theft, vandalism, fire, weather condition (such as rain, flood, wind, lightning, or earthquake), or acts of war or terrorism.

Without limiting the generality of any of the exclusions or limitations described in this Certificate, this warranty does not include any warranty that any Haas Product will meet any person's production specifications or other requirements, or that operation of any Haas Product will be uninterrupted or error-free. Manufacturer assumes no responsibility with respect to the use of any Haas Product by any person, and Manufacturer shall not incur any liability to any person for any failure in design, production, operation, performance, or otherwise of any Haas Product, other than repair or replacement of same as set forth in the warranty above.

Limitation of Liability and Damages

Manufacturer will not be liable to Customer or any other person for any compensatory, incidental, consequential, punitive, special, or other damage or claim, whether in an action in contract, tort, or other legal or equitable theory, arising out of or related to any Haas product, other products or services provided by Manufacturer or an authorized distributor, service technician, or other authorized representative of Manufacturer (collectively, "authorized representative"), or the failure of parts or products made by using any Haas Product, even if Manufacturer or any authorized representative has been advised of the possibility of such damages, which damage or claim includes, but is not limited to, loss of profits, lost data, lost products, loss of revenue, loss of use, cost of down time, business good will, any damage to equipment, premises, or other property of any person, and any damage that may be caused by a malfunction of any Haas product. All such damages and claims are disclaimed by Manufacturer and waived by Customer. Manufacturer's sole liability, and Customer's exclusive remedy, for damages and claims for any cause whatsoever shall be limited to repair or replacement, at the discretion of Manufacturer, of the defective Haas Product as provided in this warranty.

Customer has accepted the limitations and restrictions set forth in this Certificate, including, but not limited to, the restriction on its right to recover damages, as part of its bargain with Manufacturer or its Authorized Representative. Customer realizes and acknowledges that the price of the Haas Products would be higher if Manufacturer were required to be responsible for damages and claims beyond the scope of this warranty.

Entire Agreement

This Certificate supersedes any and all other agreements, promises, representations, or warranties, either oral or in writing, between the parties or by Manufacturer with respect to subject matter of this Certificate, and contains all of the covenants and agreements between the parties or by Manufacturer with respect to such subject matter. Manufacturer hereby expressly rejects any other agreements, promises, representations, or warranties, either oral or in writing, that are in addition to or inconsistent with any term or condition of this Certificate. No term or condition set forth in this Certificate may be modified or amended, unless by a written agreement signed by both Manufacturer and Customer. Notwithstanding the foregoing, Manufacturer will honor a Warranty Extension only to the extent that it extends the applicable warranty period.

Transferability

This warranty is transferable from the original Customer to another party if the CNC Machine is sold via private sale before the end of the warranty period, provided that written notice thereof is provided to Manufacturer and this warranty is not void at the time of transfer. The transferee of this warranty will be subject to all terms and conditions of this Certificate.

Miscellaneous

This warranty shall be governed by the laws of the State of California without application of rules on conflicts of laws. Any and all disputes arising from this warranty shall be resolved in a court of competent jurisdiction located in Ventura County, Los Angeles County, or Orange County, California. Any term or provision of this Certificate that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions hereof, or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction.

Customer Feedback

If you have concerns or questions regarding this Operator's Manual, please contact us on our website, www.HaasCNC.com. Use the "Contact Us" link and send your comments to the Customer Advocate.

Join Haas owners online and be a part of the greater CNC community at these sites:



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Customer Satisfaction Policy

Dear Haas Customer,

Your complete satisfaction and goodwill are of the utmost importance to both Haas Automation, Inc. and the Haas distributor (HFO) where you purchased your equipment. Normally, your HFO will rapidly resolve any concerns you have about your sales transaction or the operation of your equipment.

However, if your concerns are not resolved to your complete satisfaction, and you have discussed your concerns with a member of the HFO's management, the General Manager, or the HFO's owner directly, please do the following:

Contact Haas Automation's Customer Service Advocate at 805-988-6980. So that we may resolve your concerns as quickly as possible, please have the following information available when you call:

- Your company name, address, and phone number
- The machine model and serial number
- The HFO name, and the name of your latest contact at the HFO
- The nature of your concern

If you wish to write Haas Automation, please use this address:

Haas Automation, Inc. U.S.A.
2800 Sturgis Road
Oxnard CA 93030
Att: Customer Satisfaction Manager
email: customerservice@HaasCNC.com

Once you contact the Haas Automation Customer Service Center, we will make every effort to work directly with you and your HFO to quickly resolve your concerns. At Haas Automation, we know that a good Customer-Distributor-Manufacturer relationship will help ensure continued success for all concerned.

International:

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Zaventem, Belgium
email: customerservice@HaasCNC.com

Haas Automation, Asia
No. 96 Yi Wei Road 67,
Waigaoqiao FTZ
Shanghai 200131 P.R.C.
email: customerservice@HaasCNC.com

Declaration of Incorporation

Product: Haas Bar Feeder

Serial Number: _____

Manufactured By: Haas Automation, Inc.

2800 Sturgis Road, Oxnard, CA 93030 **805-278-1800**

We declare, in sole responsibility, that the above listed product, to which this declaration refers, cannot function independently and does not change the function of the machine it is attached to. The Haas Bar Feeder, when incorporated into Haas CNC Lathes (turning centers), complies with the regulations as outlined in the CE directive for turning centers.

- Machinery Directive 2006 / 42 / EC
- Electromagnetic Compatibility Directive 2014 / 30 / EU
- Low Voltage Directive 2014 / 35 / EU
- Additional Standards:
 - EN 60204-1:2006 / A1:2009
 - EN 614-1:2006+A1:2009
 - EN 894-1:1997+A1:2008
 - CEN 13849-1:2015

RoHS2: COMPLIANT (2011/65/EU) by Exemption per producer documentation.

Exempt by:

- a) Large scale stationary industrial tool.
- b) Lead as an alloying element in steel, aluminum, and copper.
- c) Cadmium and its compounds in electrical contacts.

Person authorized to compile technical file:

Jens Thing

Address:

Haas Automation Europe
Mercuriusstraat 28
B-1930 Zaventem
Belgium

USA: Haas Automation certifies this machine to be in compliance with the OSHA and ANSI design and manufacturing standards listed below. Operation of this machine will be compliant with the below-listed standards only as long as the owner and operator continue to follow the operation, maintenance, and training requirements of these standards.

- *OSHA 1910.212 - General Requirements for All Machines*
- *ANSI B11.5-1984 (R1994) Lathes*
- *ANSI B11.19-2003 Performance Criteria for Safeguarding*
- *ANSI B11.22-2002 Safety Requirements for Turning Centers and Automatic Numerically Controlled Turning Machines*
- *ANSI B11.TR3-2000 Risk Assessment and Risk Reduction - A Guideline to Estimate, Evaluate, and Reduce Risks Associated with Machine Tools*

CANADA: As the original equipment manufacturer, we declare that the listed products comply with regulations as outlined in the Pre-Start Health and Safety Reviews Section 7 of Regulation 851 of the Occupational Health and Safety Act Regulations for Industrial Establishments for machine guarding provisions and standards.

Further, this document satisfies the notice-in-writing provision for exemption from Pre-Start inspection for the listed machinery as outlined in the Ontario Health and Safety Guidelines, PSR Guidelines dated April 2001. The PSR Guidelines allow that notice in writing from the original equipment manufacturer declaring conformity to applicable standards is acceptable for the exemption from Pre-Start Health and Safety Review.



All Haas CNC machine tools carry the ETL Listed mark, certifying that they conform to the NFPA 79 Electrical Standard for Industrial Machinery and the Canadian equivalent, CAN/CSA C22.2 No. 73. The ETL Listed and cETL Listed marks are awarded to products that have successfully undergone testing by Intertek Testing Services (ITS), an alternative to Underwriters' Laboratories.



Haas Automation has been assessed for conformance with the provisions set forth by ISO 9001: 2015. Scope of Registration: Design and Manufacture of CNC Machines Tools and Accessories, Sheet Metal Fabrication. The conditions for maintaining this certificate of registration are set forth in ISA's Registration Policies 5.1. This registration is granted subject to the organization maintaining compliance to the noted standard. The validity of this certificate is dependent upon ongoing surveillance audits.

Original Instructions

User's Operator Manual and other Online Resources

This manual is the operation and programming manual that applies to all Haas Lathes.

An English language version of this manual is supplied to all customers and is marked **"Original Instructions"**.

For many other areas of the world, there is a translation of this manual marked **"Translation of Original Instructions"**.

This manual contains an unsigned version of the EU required **"Declaration Of Conformity"**. European customers are provided a signed English version of the Declaration of Conformity with Model Name and Serial Number.

Besides this manual, there is a tremendous amount of additional information online at: www.haascnc.com under the OWNERS section.

Both this manual and the translations of this manual are available online for machines up to approximately 15 years old.

The CNC control of your machine also contains all of this manual in many languages and can be found by passing the **[HELP]** button.

Many machine models come with manual supplement that is also available online.

All machine options also have additional information online.

Maintenance and service information is available online.

The online **"Installation Guide"** contains information and check list for Air & Electrical requirements, Optional Mist Extractor, Shipping Dimensions, weight, Lifting Instructions, foundation and placement, etc.

Guidance on proper coolant and Coolant Maintenance is located in the Operators Manual and Online.

Air and Pneumatic diagrams are located on the inside of the lubrication panel door and CNC control door.

Lubrication, grease, oil and hydraulic fluid types are listed on a decal on the machine's lubrication panel.





How to Use This Manual

To get the maximum benefit of your new Haas machine, read this manual thoroughly and refer to it often. The content of this manual is also available on your machine control under the HELP function.

IMPORTANT: Before you operate the machine, read and understand the Operator's Manual Safety chapter.

Declaration of Warnings

Throughout this manual, important statements are set off from the main text with an icon and an associated signal word: "Danger," "Warning," "Caution," or "Note." The icon and signal word indicate the severity of the condition or situation. Be sure to read these statements and take special care to follow the instructions.

Description	Example
Danger means that there is a condition or situation that will cause death or severe injury if you do not follow the instructions given.	 <i>DANGER:</i> No step. Risk of electrocution, bodily injury, or machine damage. Do not climb or stand on this area.
Warning means that there is a condition or situation that will cause moderate injury if you do not follow the instructions given.	 <i>WARNING:</i> Never put your hands between the tool changer and the spindle head.
Caution means that minor injury or machine damage could occur if you do not follow the instructions given. You may also have to start a procedure over if you do not follow the instructions in a caution statement.	 <i>CAUTION:</i> Power down the machine before you do maintenance tasks.
Note means that the text gives additional information, clarification, or helpful hints .	 <i>NOTE:</i> Follow these guidelines if the machine is equipped with the optional extended Z-clearance table.

Text Conventions Used in this Manual

Description	Text Example
Code Block text gives program examples.	G00 G90 G54 X0. Y0. ;
A Control Button Reference gives the name of a control key or button that you are to press.	Press [CYCLE START] .
A File Path describes a sequence of file system directories.	<i>Service > Documents and Software >...</i>
A Mode Reference describes a machine mode.	MDI
A Screen Element describes an object on the machine's display that you interact with.	Select the SYSTEM tab.
System Output describes text that the machine control displays in response to your actions.	PROGRAM END
User Input describes text that you should enter into the machine control.	G04 P1. ;
Variable n indicates a range of non-negative integers from 0 to 9.	Dnn represents D00 through D99.

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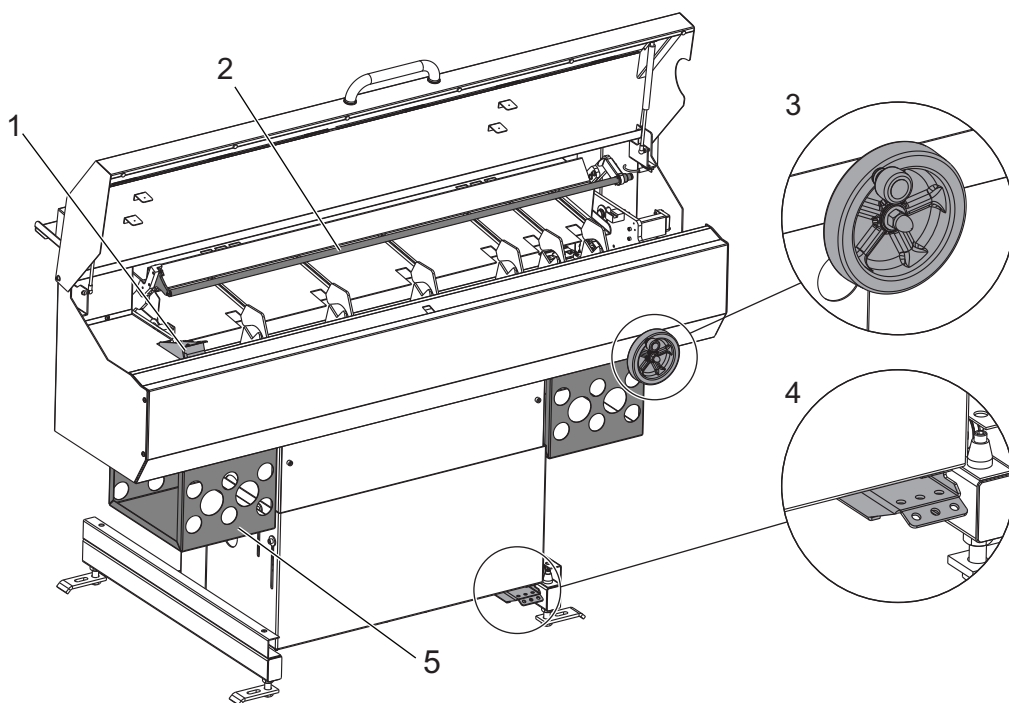
Chapter 1: Introduction

1.1 Features

The Haas Bar Feeder has a heavy-duty, compact design, with capacity for bars from 3/8" (10 mm) to 3 1/8" (79 mm) in diameter. Refer to the Haas web site at www.HaasCNC.com for more dimensions and information.

Before you use your Haas Bar Feeder, take some time to become familiar with some of the features that are different from previous-generation Haas Bar Feeders. Refer to the Operation chapter of this manual for more information on how these features work.

F1.1: Haas Bar Feeder Features Overview



1. High-Speed, Belt-Driven Bar Pusher: This mechanism quickly, smoothly, and accurately feeds bar stock into your lathe.

2. Quick-Change Push Rod: Lets you change push rods quickly and easily, without tools and no need for alignment.

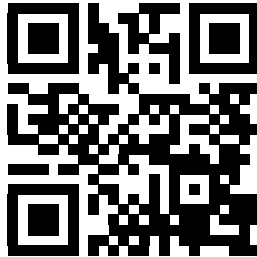
3. Front-Mounted Transfer Tray Height-Adjustment Wheel: Lets you adjust the transfer tray height on the lathe-spindle end of the Bar Feeder, for faster and easier setup.

4. Setup Mode Release Pedal: Use this pedal to release the Bar Feeder and slide it back into Lathe Set Up mode.

5. Extruded Spindle Liner Storage Racks: Store your spindle liners here for easy access.

1.2 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



Chapter 2: Safety

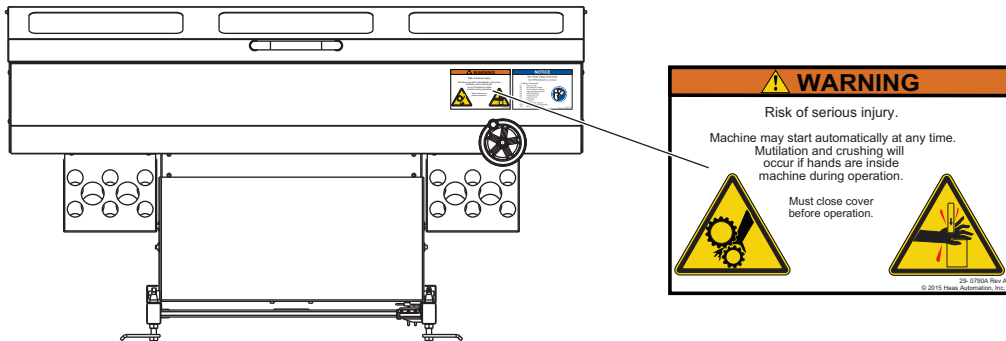
2.1 Introduction

Before you work with your Bar Feeder, read this manual and the warning labels on the machine. Make sure that everyone who uses this equipment understands the hazards found in and around automatic equipment. Only trained operators should use this machine.



WARNING: *The Bar Feeder is controlled by the lathe and may start at any time.*

F2.1: Bar Feeder Safety Decal Location



2.2 Machine Noise Limits



CAUTION: *Take precautions to prevent hearing damage from machine/machining noise. Wear ear protection, change your application (tooling, spindle speed, axis speed, fixturing, programmed path) to reduce noise, or restrict access to machine area during cutting.*

Typical noise levels at the operator's position during normal operation are as follows:

- **A-Weighted** sound pressure level measurements will be 69.4dB or lower.
- **C-Weighted** instantaneous sound pressure levels will be 78.0dB or lower.
- **LwA** (sound power level A-weighted) will be 75.0dB or lower.



NOTE:

Actual noise levels while cutting material are greatly affected by the user's choice of material, cutting tools, speeds and feeds, workholding and other factors. These factors are application specific and are controlled by the user, not Haas Automation Inc.

2.3 Read Before Operating

Electrical safety:

Disconnect the electrical power before you do maintenance tasks.

Operation Safety:



DANGER:

Incorrect setup of the Bar Feeder or spindle liner tubes can cause the workpiece or rotating parts to be ejected with lethal force, which can also destroy the machine(s).

- Do not attempt to operate the Bar Feeder until you have received operation and safety training.
- Keep your body, limbs, and foreign objects out of the machine during operation.
- Make sure that your setup is correct before automatic operation.
- The Bar Feeder is automatically controlled and may start at any time.
- Warn nearby people that an automatic machine is in operation.
- Do not operate the lathe or the Bar Feeder with the door open.
- Immediately replace worn or broken Bar Feeder components or spindle liners.
- Do not modify the Bar Feeder in any way.
- Do not use the Bar Feeder beyond the recommended speed or material capacity limits.
- Do not use the Bar Feeder without a correctly sized spindle liner installed in the lathe spindle.
- In the event of vibration or unusual noise, immediately stop the lathe spindle. Do not operate the machine again until you find and correct the condition that causes the vibration or noise.
- Do not attach dead stops, bar pilot bushings, or anti-vibration collars to the body of the rotating union (chuck closing cylinder) of the lathe. Violent, catastrophic failure of the rotating union can occur at high spindle RPM if attached devices cause damage to the rotating union.
- Do not operate the spindle while the bar material is unclamped.
- Do not operate the spindle if the bar material extends out of the spindle liner.
- Do not start or continue a machine cycle unless you are certain of the part-off allowance.

- Damage from incorrect use is not covered under the machine warranty.
- There are no user serviceable parts inside the machine. Contact your dealer for approved service.

2.4 Setup Safety

Refer to the Operation chapter of this manual for more information about setup procedures.



WARNING:

*Always press **[EMERGENCY STOP]** on the lathe before you put your hands inside the Bar Feeder enclosure. Unexpected rapid motion can occur and cause injury.*

Only a trained user may load and adjust the machine to feed bars. During setup, be aware of these pinch points:

- All parts of the moving mechanism. This includes the pusher assembly, spaces inside the enclosure, and near the bar lifter and bar positioner arms.
- The area between the bar feeder and the lathe.
- The area between the charging tray and the transfer tray.
- Rolling bar stock can also pinch fingers.

2.5 Operational Safety



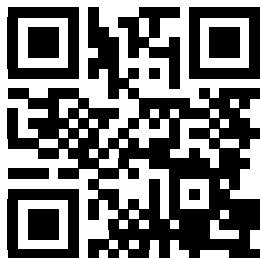
WARNING:

*The area between the Bar Feeder and the lathe is hazardous. Always press **[EMERGENCY STOP]** before you put anything between the Bar Feeder and the lathe.*

Before you run a program, always close the setup lid.

2.6 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



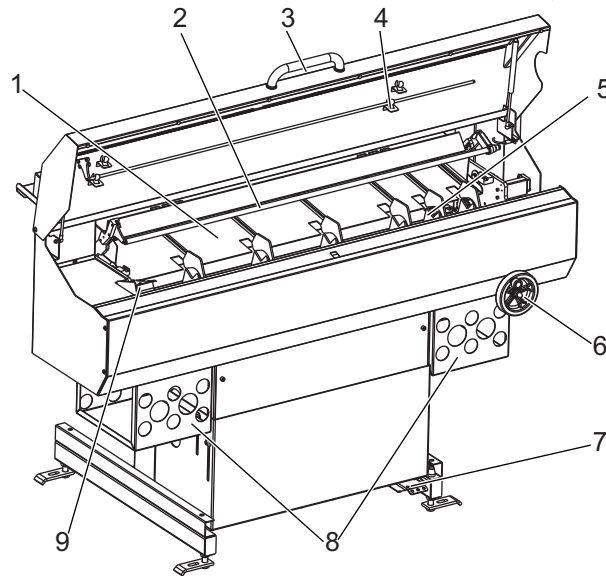
Chapter 3: Operation

3.1 Bar Feeder Setup

Bar Feeder setup consists of these tasks:

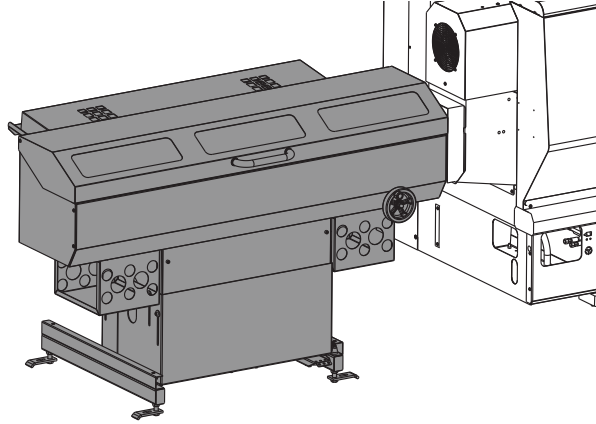
- Lathe Setup
 - Install the correct spindle liner for your application.
 - Set up the correct workholding for a bar feed application.
- Bar Setup
 - Load the bar stock.
 - Adjust the charging tray angle (if necessary).
 - Adjust the transfer tray height for the bar diameter.
 - Install the correct push rod.
 - Set up the bar feed variables.

F3.1: Bar Feeder Parts Overview

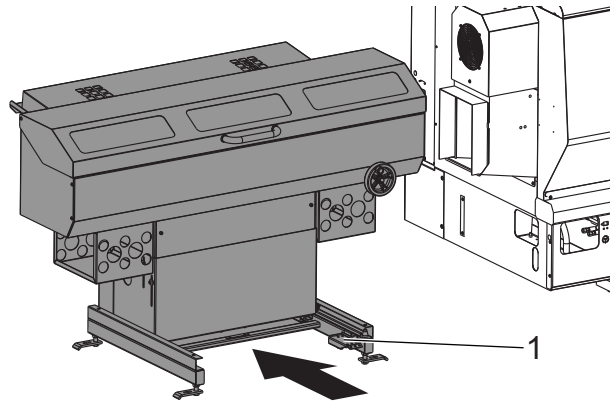


- | | |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1. Charging Tray
2. Push Rod
3. Set-up Lid Handle
4. Push Rod Storage
5. Load Mechanism | 6. Transfer Tray Adjustment Wheel
7. Release Pedal
8. Spindle Liner Storage
9. Bar Pusher |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|

3.1.1 Bar Feeder Positions



Feed / Auto Position: This is the Bar Feeder's normal operating position. You can command Bar Feeder motion at reduced speed with the lid open. In this position, you can set up your bar feed application, check and adjust tray height alignment, and run your application.



Lockout / Lathe Setup Position: Press the release pedal [1] at the base, and then push the Bar Feeder back. This mode disables all Bar Feeder motion. With the Bar Feeder in this position, you have easy access to change spindle liners, clean the coolant collector, or do other tasks on the lathe spindle.

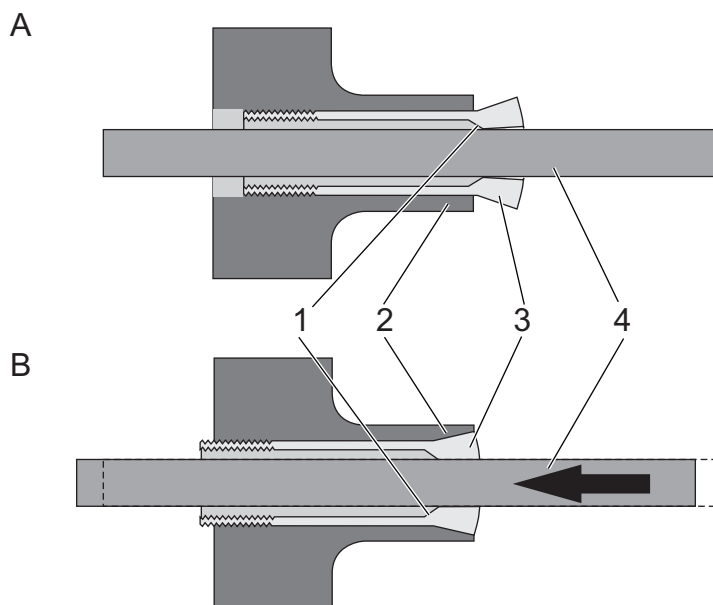
3.1.2 Bar Feeder - Workholding

A drawback collet is required for bar feed applications. The Bar Feeder holds the push rod in place while the lathe drawtube clamps. If the collet does not pull the bar stock against the push rod when the drawtube clamps, length variation can occur and accuracy cannot be guaranteed.

**NOTE:**

Your collet should also have a chamfered lead-in for smooth bar feeding.

F3.2: Drawback Collet Example. [A] Collet Unclamped; [B] Collet Clamped. [1] Chamfered Collet Lead-In, [2] Collet Closer Body, [3] Collet, [4] Bar Stock



For installation instructions, refer to the Lathe Operator's Manual and the documentation that came with your workholding.

3.1.3 Bar Feeder - Haas Spindle Liners

Spindle liners adapt the size of your spindle bore to fit the bar stock that you process. This lets the bar stock feed and run smoothly. Properly fit spindle liners also help to reduce vibration and bar whip.



NOTE:

Spindle liners do not grip the bar stock. If you have problems with vibration or poor surface finish in your application, check the clearance between the bar and the liner. Use a closer-fitting liner if possible.

Put the Bar Feeder in the Lathe Setup position to install spindle liners.

Haas manufactures (2) types of spindle liners; extruded spindle liners, which fit most Haas lathes, and a bar-guide-and-spacer spindle liner system for 4"-bar-capacity lathes. The installation instructions for both liner types are available in the Online Service site. Select the How-to Procedures search section and search for the following documents:

- Extruded Spindle Liner - Installation - AD0021
- Extruded Spindle Liner - Adapter Kit 01.75 - Installation - AD0221
- Lathe - ST-30/30Y Big Bore, ST-35/35Y - Spindle Liner Kit - Installation - AD0020

Bar Feeder - Other Spindle Liners

Haas extruded spindle liners are designed to fit a wide range of bar stock sizes, and their one-piece finned design helps keep the bar stock centered in the spindle. If you use the bar-guide-and-spacer system or another spindle liner, remember these points:

- The liner passage for the bar must fit the bar as closely as possible while still letting the bar move through smoothly. The larger your bar stock is in diameter, the closer the liner must fit.
- The liner must be centered in the spindle.
- Make custom liners or bar-guide disks with a generous lead-in chamfer. The Haas bar-guide disks use a 0.25" chamfer at 45 degrees.

3.1.4 Bar Setup - Load Bars

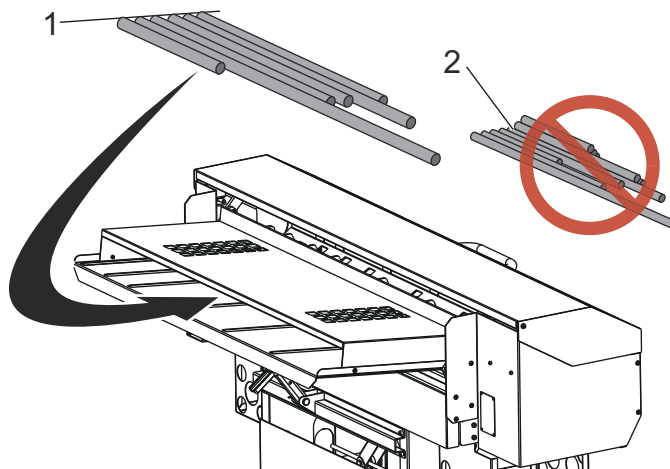
Make sure that the bars you use are appropriate for your setup:

- Test the fit of the bar stock in the spindle liner. The liner must fit close but be large enough to let the bar pass through freely. Use a different liner if necessary.
- To determine the minimum bar length: Measure the gap between the end of the transfer tray and the lathe spindle liner. Multiply this distance by 2.25. Each bar must be at least as long as the result. For example, if the distance between the end of the transfer tray and the lathe spindle is 6.75" (171 mm), each bar must be at least 15.2" (386 mm) long.

- Bar stock must be straight.
- Add a chamfer to the leading end of the bar for better initial feeding. The leading end of the bar should have no sharp edges.
- Bar stock must be cut square on the end that contacts the bar pusher, to prevent protrusions or length variation.
- The bar stock should not extend outside of the spindle liner.
- Large-diameter, heavy bar stock must be shorter than 36" (813 mm).
- It is good practice to wipe the bars clean before you load them. Dirt and debris increase liner wear and could also become jammed inside the liner.

Load bars, one at a time, into the charging tray in a single layer. Push shorter bars toward the lathe. Do not let the bars stack. If the bars roll over each other as you load them, adjust the charging tray to a shallower angle.

F3.3: Bar Loading Example. [1] Align the Leading Ends of the Bars with the Edge of the Tray. [2] Do Not Stack the Bars.



Hexagonal Bar Stock

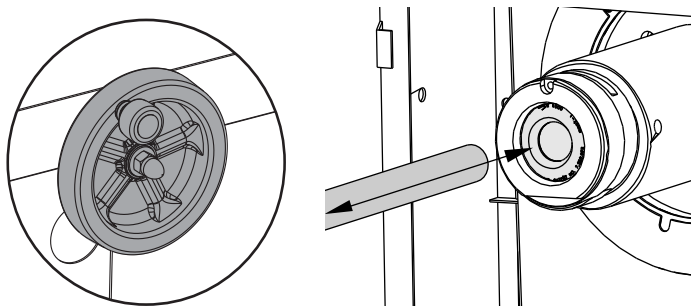
If you use hexagonal bar stock:

- Hexagonal liners are highly recommended. They should maintain a consistent orientation inside the spindle.
- If you use the bar-guide-and-spacer style of spindle liners, the first (2) guide disks should have hexagonal holes, oriented with the collet.
- The V-shape of the transfer tray keeps hexagonal stock in a consistent orientation.
- The lead end of the bar should have a 30-degree chamfer.
- Use M19 commands to set the spindle orientation to align the collet flats with the bar flats in the bar feeder tray. Note that the spindle orientation option is necessary to do this.

3.1.5 Bar Setup - Transfer Tray Adjustment

The transfer tray provides the bar stock a path that leads into the lathe spindle. When your Bar Feeder was installed, the service technician adjusted the Bar Feeder height to align the lathe spindle with the adjustment range of the transfer tray. With this procedure, you raise or lower the transfer tray to adjust it for the bar diameter.

1. Press **[EMERGENCY STOP]** on the lathe.
2. Put the Bar Feeder in the Feed/Auto position.
3. Put a piece of bar stock in the transfer tray.



4. Use the wheel to adjust the transfer tray height. Turn it clockwise to raise the tray and counterclockwise to lower the tray. As you adjust the transfer tray height, move the bar into the spindle liner by hand. Continue to adjust the transfer tray height until the bar slides freely into the liner.
5. Make sure that the collet is set for the diameter of the loaded bar:
 - a. With the collet open and the spindle stopped, slide the bar into the spindle liner and collet by hand, and check for misalignment, binding or interference.
 - b. Remove the bar and place it in the charging tray.

3.1.6 Bar Setup - Push Rod Installation / Removal

The Bar Feeder comes with push rods that are 3/4" and 3/8" in diameter. Use the 3/8" push rod for all round stock material that is smaller than 0.8" (20 mm) in diameter. Use the 3/4" push rod for material 0.8" (20 mm) in diameter and larger.

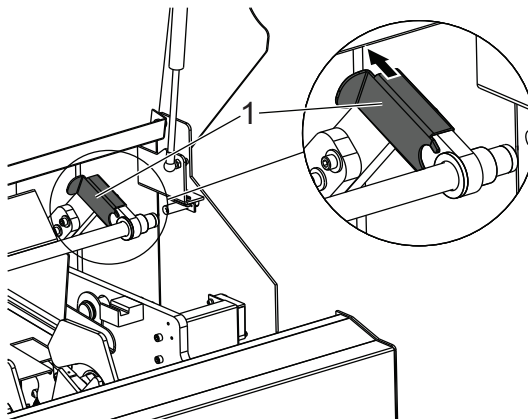


CAUTION:

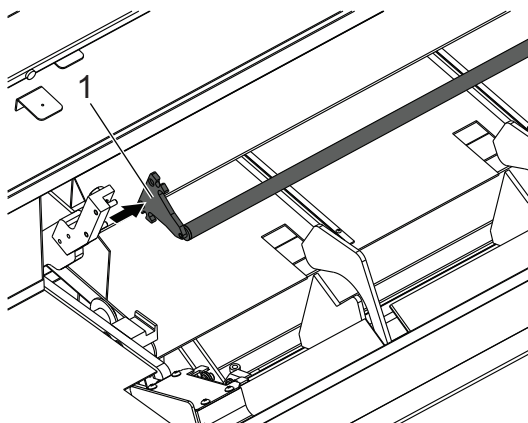
*Do not use the 3/8" push rod to push bars larger than 0.8" in diameter.
The push rod can bend.*

To change the push rod:

1. Press **[EMERGENCY STOP]** on the lathe. Open the set-up lid.
2. At the lathe end of the push rod, slide the bushing retainer away from the push rod.

F3.4: Bushing Retainer [1]

3. At the other end of the push rod, pull the retention blade off of the holder block.

F3.5: Retention Blade [1]

4. Remove the push rod and bushing. Follow this procedure in reverse to install the other push rod.
5. Store the unused push rod and bushing under the set-up lid.
6. Close the lid and reset **[EMERGENCY STOP]** to resume operation.

3.1.7 Bar Feeder Setup Pages - NGC

F3.6: NGC Bar Feeder Setup Display Pages Press **[CURNT COMDS]** and navigate to the **Bar**

Current Commands

Devices Timers Macro Vars Active Codes ATM Calculator Media

Mechanisms Bar Feeder

Unload Push Rod / Bar Stock
F2 Load and Measure Bar
F1 Advance Bar
F3 Set Reference Position

Enter length of the longest bar in the charging tray

1

Bar Feeder Operation Values		
	Value	Unit
Length of Longest Bar	48.0000	IN
Push Length (D)	0.0000	IN
Initial Push Length (F)	0.0000	IN
Minimum Clamping Length (G)	0.0000	IN
Maximum Number of Parts (0 = Unlimited)	0	
Set New Reference Position Procedure		
Set up 1: Load and Measure Bar (F2)	--	
Set up 2: Adjust Transfer Tray Height	--	

Current Commands

Devices Timers Macro Vars Active Codes ATM Calculator Media

Mechanisms Bar Feeder

Unload Push Rod / Bar Stock
F2 Load and Measure Bar
F1 Advance Bar
F3 Set Reference Position

Enter push length (D) = Cutoff Width (A) + Part Length (B) + Facing Allowance (C)

2

Bar Feeder Operation Values		
	Value	Unit
Length of Longest Bar	48.0000	IN
Push Length (D)	0.0000	IN
Initial Push Length (F)	0.0000	IN
Minimum Clamping Length (G)	0.0000	IN
Maximum Number of Parts (0 = Unlimited)	0	
Set New Reference Position Procedure		
Set up 1: Load and Measure Bar (F2)	--	
Set up 2: Adjust Transfer Tray Height	--	

Current Commands

Devices Timers Macro Vars Active Codes ATM Calculator Media

Mechanisms Bar Feeder

Unload Push Rod / Bar Stock
F2 Load and Measure Bar
F1 Advance Bar
F3 Set Reference Position

Enter initial push length (F) = Push Length (D) + Tool to chuck clearance dimension (E)

3

Bar Feeder Operation Values		
	Value	Unit
Length of Longest Bar	48.0000	IN
Push Length (D)	0.0000	IN
Initial Push Length (F)	0.0000	IN
Minimum Clamping Length (G)	0.0000	IN
Maximum Number of Parts (0 = Unlimited)	0	
Set New Reference Position Procedure		
Set up 1: Load and Measure Bar (F2)	--	
Set up 2: Adjust Transfer Tray Height	--	

Current Commands

Devices Timers Macro Vars Active Codes ATM Calculator Media

Mechanisms Bar Feeder

Unload Push Rod / Bar Stock
F2 Load and Measure Bar
F1 Advance Bar
F3 Set Reference Position

Enter minimum length (G) of bar required to support the length pushed past the chuck face

4

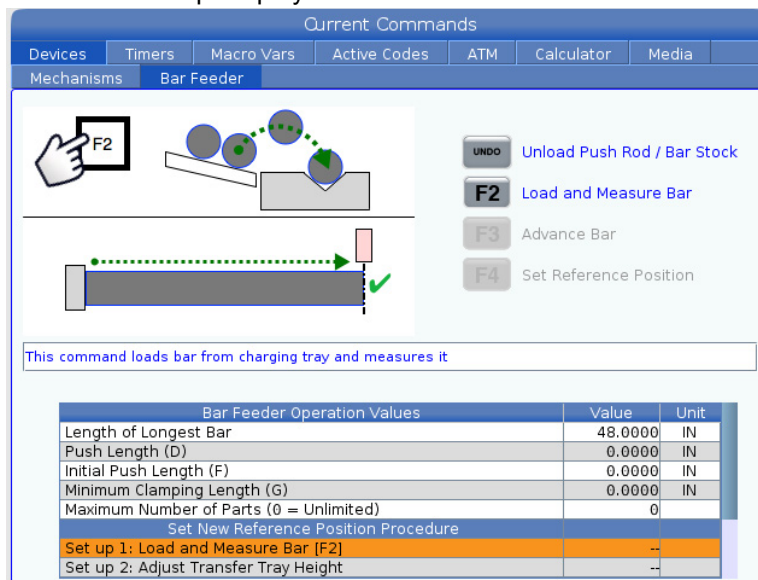
Bar Feeder Operation Values		
	Value	Unit
Length of Longest Bar	48.0000	IN
Push Length (D)	0.0000	IN
Initial Push Length (F)	0.0000	IN
Minimum Clamping Length (G)	0.0000	IN
Maximum Number of Parts (0 = Unlimited)	0	
Set New Reference Position Procedure		
Set up 1: Load and Measure Bar (F2)	--	
Set up 2: Adjust Transfer Tray Height	--	

Feeder page in the Devices tab.

1. Enter the length of the longest bar that will be used.
2. Enter the value from the cutoff face to the final push length desired (D).
3. Enter the value of the initial push length (F).
4. Enter the minimum clamping length, or remnant length (G). Make sure to leave enough length to safely hold the stock in the chuck.
5. Enter the maximum number of parts to run. Enter a value of 0 for unlimited parts.

Bar Feeder Setup - NGC

F3.7: NGC Bar Feeder Setup Display



Use the down cursor arrow to navigate between steps

1. Press **[F2]** to load and measure the bar stock. Make sure only one bar loads.
2. Adjust the transfer tray height so the material slides into the spindle liner smoothly.
3. Press **[F3]** to advance the bar stock to the chuck.
4. Press **[HAND JOG]** and jog the bar stock to the face of the chuck.
5. Step on the foot pedal to clamp the chuck.
6. Press **[F4]** to set the chuck face position and feed the bar stock to the initial push length.

Bar Feeder Recovery - NGC

F3.8: Bar Feeder Recovery Display



Press the **[RECOVERY]** button to access the bar feeder recovery mode.

The Bar Loader Status box will show the push rod position. If it displays an Unsafe Position, use the up/down cursor arrows to bump the loader into position.

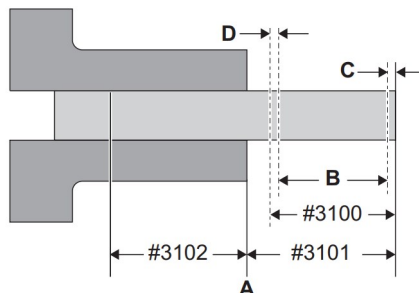
Use the other function commands as needed.

EOB Switch Calibration only needs to be performed at first install, or if the EOB sensor, home switch, or trolley are disassembled or replaced.

3.1.8 Classic Haas Control (CHC) - Bar Feeder Variable Setup

When you set up your bar feed application, you define the push lengths with variables.

F3.9: Bar Feed Variables Example. Dimensions are not to scale. [A] Reference Point, [B] Finished Part Length, [C] Facing Allowance, [D] Cutoff Allowance



- #3100 (Part Length + Cutoff): This is the total length of the finished part, plus allowances for face clean-up and part-off cuts. This is the distance that the Bar Feeder pushes the bar on every push after the initial push.
- #3101 (Initial Push Length): The distance the Bar Feeder pushes the material past the reference point. The examples given in this manual use a reference point at the collet face. This is the distance that the Bar Feeder pushes each new bar for the first time.
- #3102 (Minimum Clamping Length): The minimum length of bar necessary to safely clamp and machine the workpiece. This is also called the remnant length, but the actual remnant can be longer.

To set up the variable positions:

1. Press **[CURRENT COMMANDS]**.

F3.10: Bar Feeder Current Commands Display

BAR FEEDER		
HAAS SERVO BAR SYSTEM VARIABLES:		
3100	PART LENGTH + CUTOFF:	2.1500 in
3101	INITIAL PUSH LENGTH:	2.5000 in
3102	MIN CLAMPING LENGTH:	3.0000 in
3103	MAX # PARTS:	5
3104	MAX # BARS:	5
3105	MAX LENGTH TO RUN:	40.0000 in
3106	CURRENT # PARTS RUN:	0
3107	CURRENT # BARS RUN:	0
3108	CURRENT LENGTH RUN:	0.0001 in
3109	LENGTH OF LONGEST BAR:	48.0000 in
3110	CURRENT BAR LENGTH:	0.0000 in
3113	MIN RETRACT POSITION:	12.0000 in
3114	NEW BAR	FALSE

2. Press **[PAGE UP]** or **[PAGE DOWN]** to find the **BAR FEEDER** page.

3. Highlight the variable that you want to edit.
4. Type the value and press **[ENTER]**.

Example:

#3100=2.150 (2.0" long part + 0.125" cutoff tool width + 0.025" facing allowance)

#3101=2.5 (2.5" of stock pushed past face of the collet)

#3102=3.0 (3.0" of material to clamp. During subsequent bar feeds, the machine will not push the bar farther than a safe clamp position.)

CHC - Push Rod Clearance for #3102



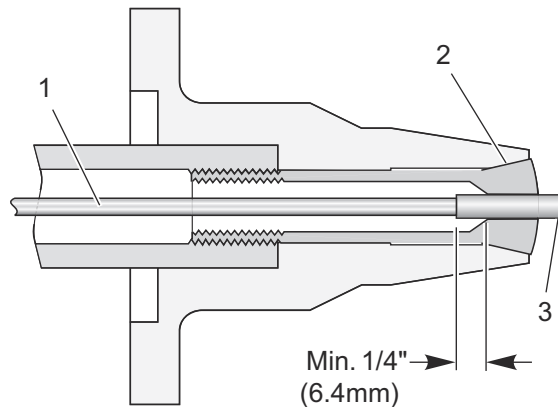
CAUTION:

Make sure that the push rod maintains 1/4" (6.4 mm) of clearance between it and the collet chamfer. This clearance is necessary to make sure that the push rod does not come in contact with collet clamping surfaces.

To set push rod clearance:

1. Set macro variable #3102 MIN CLAMPING LENGTH to 1/4" (6.4 mm) from the collet clamping surfaces.

F3.11: Minimum Clamping Length: [1] Push Rod, [2] Collet, [3] Workpiece



CAUTION:

This diagram is for reference only. Workholding varies in form and function. It is your responsibility to keep the push rod 1/4" away from workholding surfaces.

CHC - Reference Position Setup

The reference position is the zero point that the Haas Bar Feeder uses for all push operations. You usually establish the reference point at the face of the collet or the chuck jaws.

**NOTE:**

You must reset the reference position each time you change the workholding or move the Bar Feeder. When you change jobs, you do not need to establish a new reference position unless the new job uses different workholding.

To set up the reference position:

1. If there is a workpiece in the lathe, remove it.
2. Make sure the lathe door and the set-up lid are closed.
3. Type `G105 Q4 ;` in **MDI** mode, and then press **[CYCLE START]**.
The Bar Feeder loads a bar and pushes it toward the face of the collet.
4. After machine motion stops, press **[RESET]**. You can now use the jog handle to move the Bar Feeder.
5. Jog the material to the reference position that you want to use, usually flush with the collet face.
6. Clamp the workholding.
7. Make sure the lathe door and the set-up lid are closed.
8. Command `G105 Q2 ;` (Set Reference Position).
The machine records the position, then pushes the bar the distance specified in variable #3101 (Initial Push Length). In the variable setup described above, this is 2.5" past the reference point.
9. Measure the bar to make sure that the Bar Feeder pushed the stock the correct distance.

CHC - Bar Length Reset Procedure

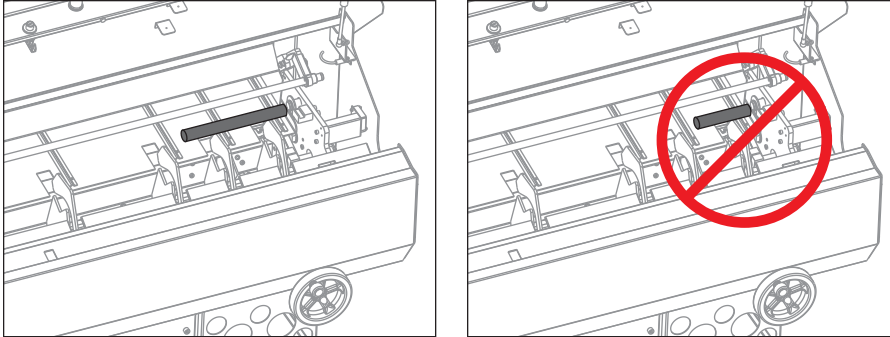
If a bar feed does not complete successfully because of an EMERGENCY STOP or an alarm, the Bar Feeder can lose the current bar length and you need to reset it.

1. Enter **MDI** mode.
2. Press **[V]**, and then **[HANDLE JOG]**.
3. Use the jog handle to control the V Axis until the bar is at the reference position.
4. Type `G105 Q1 ;` in **MDI**, and then press **[CYCLE START]**.

This resets the bar length and pushes the bar to its initial push-out length.

3.1.9 Loading Short Bars - NGC

F3.12: Short Bars Must Use At Least (2) Pick Arms



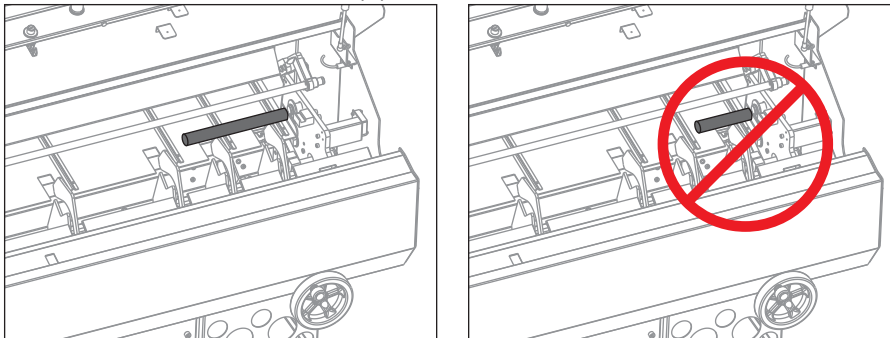
To machine short bars:

1. Open the Bar Feeder door and place the short bar on the charging tray. Make sure that the bar is long enough so at least (2) of the pick arms can pick up the bar. If not the bar may not load properly.
2. Close the Bar Feeder door.
3. Press the **[CURRENT COMMANDS]** button and navigate to the Bar Feeder tab.
4. Press the **[F2]** button.
The Bar Feeder will load and measure the bar.
5. Open the Bar feeder door and remove the short bar from the Bar Feeder tray.
6. Open the operator door and manually load the bar through the chuck.
7. Press the **[F3]** button.
The Bar Feeder will load the push rod and advance the bar.
8. Press the **[HANDLE JOG]** button and slowly jog the bar until the bar is aligned with the chuck or collect face.
9. Press the Chuck Foot Pedal to clamp the bar.
10. Press the **[F4]** button to set the reference position.

A window pop up will show *Advance bar to initial length?* Press *Y* or *N* to advance the bar. Repeat these steps for the next short bar.

3.1.10 Loading Short Bars - CHC

F3.13: Short Bars Must Use At Least (2) Pick Arms



To machine short bars:

1. When you load short bars on the charging tray, make sure that at least (2) of the pick arms pick the bar up, or the bar may not load properly.
2. Push all of the bars against the side of the charging tray closest to the lathe.
3. Enter the length of the longest bar in the tray into the Bar Feeder page, macro variable #3109 on the CHC.



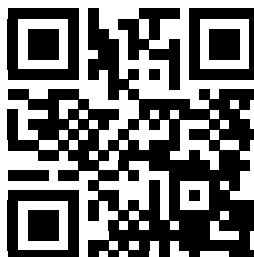
CAUTION:

If #3109 is too small, or if all the bars are not against the right side of the tray, the pusher can crash into the bar at full speed.

The bar pusher rapids to the buffer position before it slows to measure the bar length.

3.2 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



Chapter 4: Programming

4.1 Program Examples

This section has (4) program examples.

- Example 1 calls a subprogram in the G105 command to cut off the part. This programming style is most appropriate for solid stock where the cutoff program must cut to the centerline.
- Example 2 includes the cutoff in the part program. This programming style is most appropriate when the finished part has a hole through the center, and the cutoff program does not have to cut to the centerline.
- Example 3 describes a double push. This programming style is most appropriate to machine a length of bar shorter than the full part length, and then push to the full part length.
- Example 4 describes the use of Q13 to specify a subprogram to run at the beginning of each new bar. This programming style is most appropriate when you need a multiple-pass facing operation to clean the bar before machining. Q13 is the only Q-Code that works with the Next Generation Control.

**CAUTION:**

The sample programs in this manual have been tested for accuracy, but they are for illustrative purposes only. The programs do not define tools, offsets, or materials. They do not describe workholding or other fixturing. If you choose to run a sample program on your machine, do so in Graphics mode. Always follow safe machining practices when you run an unfamiliar program.

4.1.1 Example 1 - Cutoff Subprogram

This example shows the preferred programming method with solid stock material, where the cutoff operation must cut to the centerline. The material is 2" (51mm) diameter solid stock and the finished part is 1" (25mm) long. The cutoff tool is 0.125" wide. The spindle/tool clearance is 0.875". The amount of stock to remove from the face is 0.025".

The program uses these Bar Feeder variable values:

Variable Number / NGC Letter	Description	Value
#3100 (D)	Part Length + Cutoff Allowance + Facing Allowance	1.150
#3101 (F)	Initial Push Length	2.025
#3102 (G)	Minimum Clamping Length	1.0

Command G105 in MDI mode to load a bar and push it to the initial push length. In this example, the initial push length includes the 0.875" spindle/tool clearance, the 0.125" width of the cutoff tool, and a 0.025" facing allowance.

This program starts with a call to the cutoff subprogram. The effect of this is different depending on whether this is a new bar or if it is the next program loop on a bar:

- If this is a new bar, the cutoff subprogram faces and cleans the bar end at the initial push length (#3101 (F)), and then the Bar Feeder pushes out the part length plus allowances (#3100 (D)).
- When the subprogram call repeats on a bar, the cutoff subprogram cuts off finished parts and leaves a clean bar end, and then the Bar Feeder pushes out the part length plus allowances (#3100 (D)).



NOTE:

When you write a bar feed program with a cutoff routine and then a bar feed command, or with a bar feed command that includes a Pxxxxx cutoff subprogram call, it is safest and most consistent to start the program with the bar feed command. This practice makes sure that a fresh piece of material, with a faced surface, in a consistent position, is always available for the rest of the operation.

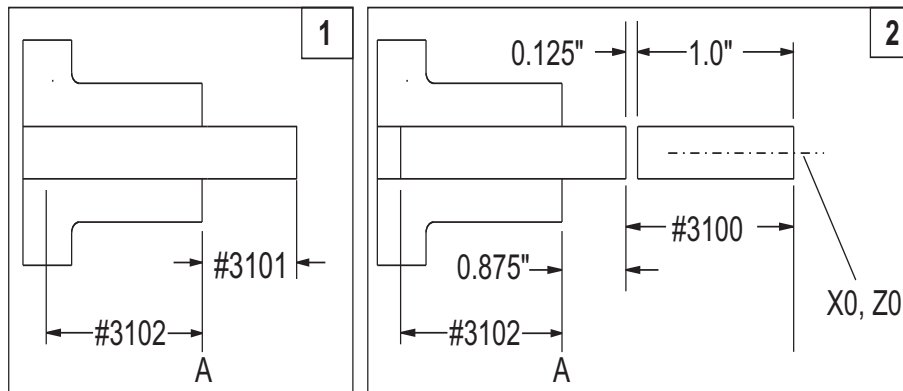
Note also that the main program has a block-deleted M99 command in the second-to-last line. This lets you turn on block delete if you want the program to run only (1) time.

```
%
O00023 (PART PROGRAM)
G105 P24 (CALL CUTOFF SUB PROGRAM THEN BAR FEED)
T303 (FACE & TURN)
G50 S1500
G96 S500 M03
G00 G54 X2.1 Z0 M08
G01 X-0.05 F0.005
```

```

G00 X1.95 Z.05
G01 Z-1.0 F0.01
X2.1
G53 G00 X0
G53 Z0
/M99
M30
%
%
O00024 (CUT-OFF SUB PROGRAM)
T404
G50 S1500
G96 S500 M03
G00 X2.1 Z0.1 M08
Z-1.125 (1" PART LENGTH PLUS THE TOOL WIDTH)
G01 X-0.05 F0.005
G00 X2.1
G53 X0
G53 Z0
M99
%
```

F4.1: Program Example 1. Dimensions are not to scale. [1] Shows the Bar After the Initial Push at MDI Setup, [2] Shows the Bar During Subsequent Feeds, [A] Reference Point, Variables as Defined Above.



4.1.2 Example 2 - Cutoff in Program

This example shows the preferred programming method when the cutoff operation does not have to cut to the centerline, as when the finished part has a hole through the center. Unlike the first program example, which uses the same subprogram to both face a new bar and cut off finished parts, this program includes a facing operation and a separate cutoff operation for finished parts. The facing operation cuts to the workpiece centerline. To save machining time, the cutoff operation cuts only as far as the finished part's inner diameter.

The material is 2" (51 mm) diameter solid stock and the finished part is 1" (25 mm) long. The cutoff tool is 0.125" wide. The spindle/tool clearance is 0.875". The amount of stock to remove from the face is 0.025".

The program uses these Bar Feeder variable values:

Variable Number / NGC Letter	Description	Value
#3100 (D)	Part Length + Cutoff Allowance + Facing Allowance	1.150
#3101 (F)	Initial Push Length	2.025
#3102 (G)	Minimum Clamping Length	1.0

Command G105 in MDI mode to load a bar and push it to the initial push length. In this example, the initial push length includes the 1" finished part length, 0.875" spindle/tool clearance, the 0.125" width of the cutoff tool, and a 0.025" facing allowance.

This program starts with the face and turn operation, then the cutoff operation, and the bar feed command at the end.

Note also that the program has a block-deleted M99 command in the second-to-last line. This lets you turn on block delete if you want the program to run only (1) time.

```
% ;  
O00020 (PART PROGRAM) ;  
T303 (FACE & TURN) ;  
G50 S1500 ;  
G96 S500 M03 ;  
G00 G54 X2.1 Z0 M08 ;  
G01 X-0.05 F0.005 ;  
G00 X1.95 Z.05 ;  
G01 Z-1.0 F0.01 ;  
X2.1 ;
```

```

G53 G00 X0 ;
G53 Z0 ;
T404 (CUT OFF OPERATION) ;
G50 S1500 ;
G96 S500 M03 ;
G00 X2.1 Z0.1 M08 ;
Z-1.125 (1" PART LENGTH PLUS THE TOOL WIDTH) ;
G01 X-0.05 F0.005 ;
G00 X2.1 ;
G53 X0 ;
G53 Z0 ;
G105 (BAR FEED) ;
/M99 ;
M30 ;
%
```

4.1.3 Example 3 - Double Push

This example demonstrates a double push on the workpiece. The program contains (2) G105 commands. The first G105 uses the variables values set on the Bar Feeder current commands page. The second G105 uses J and K values to override the variable values.

This is the preferred programming method when, for example, you need the rigidity of a short bar for part of your operation, and then to machine the rest of the longer finished part.

The material is 2" (51 mm) diameter solid stock and the finished part is 4" (100 mm) long. The cutoff tool is 0.125" wide. The spindle/tool clearance is 0.875". The amount of stock to remove from the face is 0.025".

The program uses these Bar Feeder variable values. These values apply to the first G105 command, given without address codes:

Variable Number	Description	Value
#3100 (D)	Part Length + Cutoff Allowance + Facing Allowance	1.150
#3101 (F)	Initial Push Length	2.025
#3102 (G)	Minimum Clamping Length	4.0

In the second G105 command, the program uses these address codes to override the values given in the bar feeder variables:

Address Code	Description	Value
J	Part Length + Cutoff Allowance + Facing Allowance	3.0
K	Minimum Clamping Length	1.0

Note also that the program has a block-deleted M99 command in the second-to-last line. This lets you turn on block delete if you want the program to run only (1) time.

Command G105 in **MDI** mode to load a bar and push it to the initial push length. In this example, the initial push length includes the 2" length to machine first and a 0.025" facing allowance.

Before you run this program for the first time after you load a bar in **MDI** mode, move the cursor to the block after the first G105 command in the program to bypass the first push. Remember that after the initial push, the bar is already in position to start machining.

```
%
O00021 (DOUBLE PUSH WITH Bar Feeder) ;
G105 (BAR FEED USING MACRO VARIABLES) ;
T303 (FACE & TURN) ;
M01 ;
G50 S1500 ;
G96 S500 M03 ;
G00 G54 X2.1 Z0 M08 ;
G01 X-0.05 F0.005 ;
G00 X1.95 Z.05 ;
G01 Z-1.0 F0.01 ;
X2.1 ;
G53 G00 X0 ;
G53 Z0 ;
G105 J3.0 K1.0 (BAR FEED WITH OPTIONAL VARIABLES) ;
M01 ;
T404 (CUT OFF TOOL) ;
G55 (WORK OFFSET CHANGE) ;
G50 S1500 ;
G96 S500 M03 ;
G00 G55 X2.1 Z0.1 M08 ;
Z-4.125 ;
G01 X-0.05 F0.005 ;
G00 X2.1 ;
G53 X0 ;
G53 Z0 ;
/M99 ;
M30 ;
```

%

4.1.4 Example 4 - CHC - Q13 Facing Subprogram

This program uses a two-pass facing operation that runs conditionally at the beginning of each new bar. The Q13 command in the G105 line specifies program O00025 as the new bar facing subprogram.

Each time the control loads a new bar, it gives variable #3114 a value of 1. This prompts the control to run the specified subprogram at Q13. The control then changes the value of variable #3114 to 0 until it loads another new bar. While variable #3114 has a value of 0, the control does not run the facing subprogram.

Variable Number / NGC Letter	Description	Value
#3100 (D)	Part Length + Cutoff Allowance + Facing Allowance	1.150
#3101 (F)	Initial Push Length	2.025
#3102 (G)	Minimum Clamping Length	1.0

```
%
o00022;
G105 Q13 P25 (RUN FACING SUBPROGRAM AT A NEW BAR) ;
T303 (FACE & TURN) ;
G50 S1500 ;
G96 S500 M03 ;
G00 G54 X2.1 Z0 M08 ;
G01 X-0.05 F0.005 ;
G00 X1.95 Z.05 ;
G01 Z-1.0 F0.01 ;
X2.1 ;
G53 G00 X0 ;
G53 Z0 ;
M01 ;
(CUT-OFF PROGRAM) ;
T404 ;
G50 S1500 ;
G96 S500 M03 ;
G00 X2.1 Z0.1 M08 ;
Z-1.125 (1" PART LENGTH PLUS THE TOOL WIDTH) ;
```

```

G01 X-0.05 F0.005 ;
G00 X2.1 ;
G53 X0 ;
G53 Z0 ;
M99 ;
%
%
O00025 ;
T303 (FACING PROGRAM FOR BEGINNING OF NEW BAR) ;
G50 S1500 ;
G96 S500 M03 ;
G00 G54 X2.1 Z.1 M08 ;
G01 X-0.05 F0.005 (1ST FACING PASS) ;
G00 Z.15 ;
X2.1 ;
Z.05 ;
G01 X-0.05 (2ND FACING PASS) ;
G53 X0 ;
G53 Z0 ;
M99 ;
%
```

4.1.5 Example 4 - NGC - Q13 Facing Subprogram

This program uses a two-pass facing operation that runs conditionally at the beginning of each new bar. The Q13 command in the G105 line specifies program O00025 as the new bar facing subprogram.

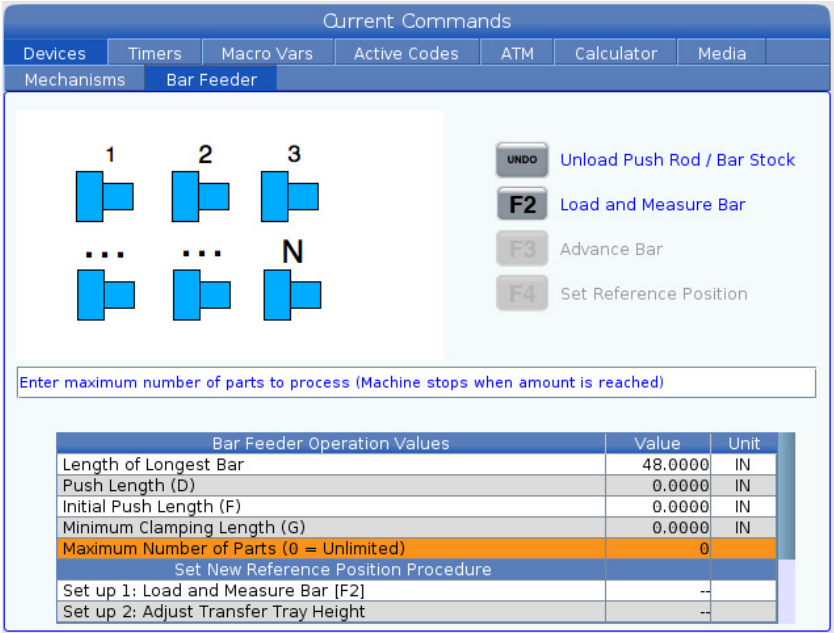
Each time the control loads a new bar, it gives variable #3114 a value of 1. This prompts the control to run the specified subprogram at Q13. The control then changes the value of variable #3114 to 0 until it loads another new bar. While variable #3114 has a value of 0, the control does not run the facing subprogram.

Variable Number / NGC Letter	Description	Value
#3100 (D)	Part Length + Cutoff Allowance + Facing Allowance	1.150
#3101 (F)	Initial Push Length	2.025
#3102 (G)	Minimum Clamping Length	1.0


```
%  
O00022;  
G105;  
G105 Q13 P25 (RUN FACING SUBPROGRAM AT A NEW BAR) ;  
T303 (FACE & TURN) ;  
G50 S1500 ;  
G96 S500 M03 ;  
G00 G54 X2.1 Z0 M08 ;  
G01 X-0.05 F0.005 ;  
G00 X1.95 Z.05 ;  
G01 Z-1.0 F0.01 ;  
X2.1 ;  
G53 G00 X0 ;  
G53 Z0 ;  
M01 ;  
(CUT-OFF PROGRAM) ;  
T404 ;  
G50 S1500 ;  
G96 S500 M03 ;  
G00 X2.1 Z0.1 M08 ;  
Z-1.125 (1" PART LENGTH PLUS THE TOOL WIDTH) ;  
G01 X-0.05 F0.005 ;  
G00 X2.1 ;  
G53 X0 ;  
G53 Z0 ;  
M99 ;  
%  
%  
O00025 ;  
T303 (FACING PROGRAM FOR BEGINNING OF NEW BAR) ;  
G50 S1500 ;  
G96 S500 M03 ;  
G00 G54 X2.1 Z.1 M08 ;  
G01 X-0.05 F0.005 (1ST FACING PASS) ;  
G00 Z.15 ;  
X2.1 ;  
Z.05 ;  
G01 X-0.05 (2ND FACING PASS) ;  
G53 X0 ;  
G53 Z0 ;  
M99 ;  
%
```

4.2 NGC Bar Feeder - Counter

F4.2: Bar Feeder Counter Display



The Bar Feeder can count either the number of parts made, or the length of material run. A non-zero value set in, **Maximum Number of parts** determines the active counting modes. The first non-zero value stops the cycle if more than one is present.

To stop the machine after a chosen number of parts, set **Maximum Number of Parts** to the chosen quantity. The counter increments at each G105 command. If G105 is at the beginning of the program, the counter increments before each part starts machining. If G105 is at the end of the program, the counter increments after each part finishes machining.

F4.3: Timers Display

Current Commands			
Devices	Timers	Macro Vars	Active Codes
ATM	Calculator	Media	
Date:	01-20-1970	Loops Remaining:	0
Time:	23:30:10	M30 Counter #1:	0
Time Zone:	PST	M30 Counter #2:	0
Power On Time:	11:47:47	Macro Label #1:	LABEL 1
Cycle Start Time:	0:00:16	Macro Assign #1:	0.0
Feed Cutting Time:	0:00:00	Macro Label #2:	LABEL 2
This Cycle:	0:00:00	Macro Assign #2:	0.0
Last Cycle:	0:00:00		
Current # Parts Run:	0		
Max # Parts:	0		
Current Bar Length:	0.0000		

To view the counters exit the **Devices** tab and navigate to the **Timers** tab.

The CHC variables can also be accessed in the NGC in the **Macro Vars** tab.

4.3 CHC - Counter

The Bar Feeder can count either the numbers of bars used, the number of parts made, or the length of material run. A non-zero value set in **Max # Parts** (#3103), **Max # Bars** (#3104), or **Max Length to Run** (#3105) determines the active counting modes. The first non-zero value stops the cycle if more than one is present.

To stop the machine after a chosen number of parts, set **Current Number of Parts Run** (#3106) to zero. Then, set **Max # Parts** (#3103) to the chosen quantity. The counter increments at each G105 command. If G105 is at the beginning of the program, the counter increments before each part starts machining. If G105 is at the end of the program, the counter increments after each part finishes machining.

To stop the machine after a certain number of bars, set **Current Number of Bars Run** (#3107) to zero. Then set **Max # Bars** (#3104) to the number of bars to run. The counter increments as each bar is loaded.

To stop the machine after a certain length of bar, set **Current Length Run** (#3108) to zero. Then set **Max Length To Run** (#3105) to the total bar length you want to machine.

**NOTE:**

The counter increments by the push distance at each G105 command. This distance is either the initial push length (#3101) after a bar is loaded or the part length + cutoff (#3100) at each bar feed after the initial push.

4.4 Macro Variables

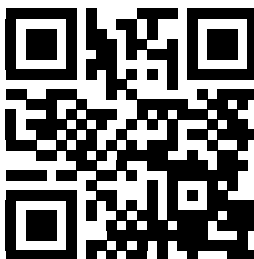
T4.1: Bar Feeder Macro Variables

Variable	Name	Description
#3100	PART LENGTH + CUTOFF	Bar feed increment (Length of bar pushed out with each G105 after the bar is loaded). Finished part length + cutoff length + face cleanup allowance.
#3101	INITIAL PUSH LENGTH	Initial bar feed length (Length of bar pushed out past the reference position when loaded).
#3102	MIN CLAMPING LENGTH	Minimum length for clamping (Length of bar required to support the length pushed past the collet face).
#3103	MAX # PARTS	Maximum number of parts.
#3104	MAX # BARS	Maximum number of bars.
#3105	MAX LENGTH TO RUN	Maximum length to run.
#3106	CURRENT # PARTS RUN	Part counter.
#3107	CURRENT # BARS RUN	Bar counter.
#3108	CURRENT LENGTH RUN	Length counter.
#3109	LENGTH OF LONGEST BAR	Length of the longest bar (set to 48, if unknown). Setting the length close to the size of the bar stock allows faster measurement of shorter bars. This length must be longer than the bar stock being used.
#3110 (Read Only)	CURRENT BAR LENGTH	Current bar length measured by the machine.

Variable	Name	Description
#3112 (Internal Only)	REFERENCE POSITION	Established using G105 Q4 Jog To Reference Position
#3113	MIN RETRACT POSITION	Adjust this to make sure the push rod retracts out of the spindle liner after each G105 push. Jog the V Axis until there is a safe gap between the end of the push rod and the spindle liner (approximately 1 inch/25 mm). Look at your V-Axis position, it will be a negative number (example: -13.0). Enter this number, as a positive value under variable #3113 (example: #3113=13.0).
#3114	NEW BAR	This variable has a value of 1 if the last Bar Feeder operation loaded a new bar. It has a value of 0 if the last Bar Feeder operation did not load a new bar.

4.5 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



Chapter 5: G-Code Reference

5.1 G105 Servo Bar Command

This is the G-code used to command a Bar Feeder.

```
G105 [In.nnnn] [Jn.nnnn] [Kn.nnnn] [Pnnnnn] [Rn.nnnn]
```

I - Optional Initial Push Length (macro variable #3101) Override (variable #3101 if I is not commanded)

J - Optional Part Length + Cutoff (macro variable #3100) Override (variable #3100 if J is not commanded)

K - Optional Min Clamping Length (macro variable #3102) Override (variable #3102 if K is not commanded)

P - Optional cutoff subprogram

R - Optional spindle orientation for new bar

I, J, K are overrides to macro variable values listed on the Current Commands Page. The control applies the override values only to the command line in which they are located. The values stored in Current Commands are not modified.

5.2 CHC - G105 Q Modes

Q modes are special Bar Feeder commands that you use with a G105 command in **MDI** mode on the Classic Haas Control. They are generally for setup and troubleshooting purposes. This section describes the available Q modes. Only the Q13 code works on the NGC control.

To use a Q mode, type G105 QX ; in **MDI** mode, where X is the Q mode number you want to command, and then press **[CYCLE START]**.

T5.1: Q Mode List

Q0	Normal Bar Feed	Q7	Load the Push Rod
Q1	Set the Bar Length	Q8	Unload the Bar Stock
Q2	Set the Reference Position	Q9	Load the Bar Stock
Q3	Alternate Set Reference Position	Q10	Load Bar and Measure
Q4	Jog to the Reference Position	Q11	Bump Load Push Rod Direction
Q5	Set the End-of-Bar Position	Q12	Bump Load Bar Direction
Q6	Unload the Push Rod	Q13	New Bar Face Off

G105 Q0 - Normal Bar Feed: Use this to command a normal bar feed in MDI mode. This is the same as a G105 command with no Q mode.

G105 Q1 - Set the Bar Length: Use this command to reset the bar length stored in the control. You can use this for bars that are too short to load, or for recovery after an error.

Press **[V]** and then **[HANDLE JOG]**, then use the jog handle to push the bar to the reference position. Clamp the workholding and run this command to recalculate the bar length.



NOTE:

The push rod must be in contact with the bar when you set the bar length. If the bar is pushed out too far, jog the push rod back, push the bar against it by hand and then jog the bar to the reference point.

G105 Q2 [I] - Set the Reference Position, then Initial Push: This command sets the reference position, unclamps the workholding and then pushes the bar the distance specified in the Initial Push Length variable (#3101), or the I value if given, then clamps the workholding. It then runs the cutoff subprogram (PXXXXXX) if specified. **You must command G105 Q4 before you can use this command.**



NOTE:

The push rod must be in contact with the bar when you set the reference position. If the bar is pushed out too far, jog the push rod back, push the bar against it by hand and then jog the bar to the reference point.

G105 Q3 - Set the Reference Position from the Bar Face: This command subtracts the Part Length + Cutoff variable (#3100) from the current bar face position to set the reference position. It then runs the cutoff subprogram (PXXXXXX), if specified. Refer to the

description of G105 Q2 for other considerations. **You must command G105 Q4 before you can use this command.**



WARNING:

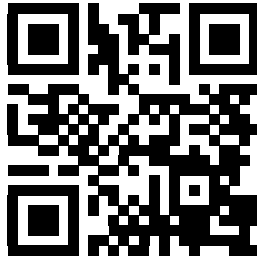
This command does not cause the bar to move. If you execute this command more than once, it moves the reference position farther away from the bar face, and possibly out of the clamping area. If the bar is not clamped when the spindle starts, severe damage will occur.

- G105 Q4 [R] - Jog to the Reference Position:** This command loads a bar, measures it, and then pushes it through the spindle. It stops just before the chuck face. Press RESET to use the V-Axis handle jog mode to jog the bar to the reference position.
- G105 Q5 - Set the End-of-Bar position:** This command sets the switch position that the control uses to determine bar lengths. This value is stored in variable #3111.
- G105 Q6 - Unload the Push Rod:** This command causes the bar feeder to remove the push rod from the bar pusher. It then lifts the push rod into the storage position.
- G105 Q7 - Load the Push Rod:** This command causes the bar feeder to move the push rod onto the bar pusher.
- G105 Q8 - Unload the Bar:** This command causes the Bar Feeder to remove a bar from the transfer tray and put it in the charging tray. Make sure that the bar is within the space of the charging tray before you execute this command.
- G105 Q9 - Load Bar:** This command causes the Bar Feeder to load a bar from the charging tray and put it in the transfer tray.
- G105 Q10 - Load Bar and Measure:** This command loads a bar from the charging tray to the transfer tray, then measures it. You use this command to check the end-of-bar switch position. Put a bar of known length in the charging tray. Command G105 Q10, and compare the actual bar length to the value in variable #3110.
- G105 Q11 - Bump Load Push Rod Direction:** Used for assembly access only. Bumps the bar transfer mechanism toward the charging tray.
- G105 Q12 - Bump Load Bar Direction:** Used for assembly access only. Bumps the bar transfer mechanism away from the charging tray.
- G105 Q13 - New Bar Face Off:** Use this code when you need multiple facing passes to prepare the uneven end of a newly loaded piece of bar stock. When the control commands the Bar Feeder to load a new bar, it also sets variable #3114 to a value of 1. Q13 commands the subprogram specified in Pxxxxx and then changes the value of variable #3114 to 0. The subprogram should contain a facing operation to clean up the newly loaded bar. When the bar feed command does not load a new bar, the control

reads the 0 value in variable #3114 and does not run the subprogram. This is the only Q code that works with the Next Generation Control machines.

5.3 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



Chapter 6: Maintenance

6.1 Maintenance

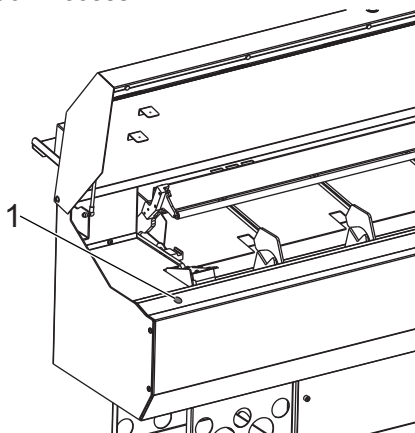


WARNING: Press **[POWER OFF]** on the lathe before you do maintenance tasks.

The Haas Bar Feeder requires little regular maintenance for optimal operation.

- Apply grease to the push rod and bushing. Manually move the push rod back and forth to spread the grease and check for binding. Do this approximately (1) time per month, or when the push rod is dry.
- Approximately (1) time per month, align the grease fitting in the linear guide truck with the hole in the enclosure and apply (2) strokes from a grease gun.

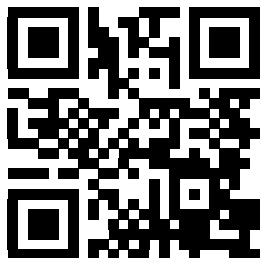
F6.1: [1] Linear Guide Lubrication Access



- Clean the transfer tray.
- If a feed problem occurs, look for obstructions in the bar path before you continue operation. Check for wear or debris in the spindle liner, and replace it if necessary.

6.2 More Information Online

For updated and supplemental information, including tips, tricks, maintenance procedures, and more, visit the Haas Service page at www.HaasCNC.com. You can also scan the code below with your mobile device to go directly to the Haas Service page:



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