

MACTECH

MT8 LRB PORTABLE MILL SETUP AND OPERATION MANUAL

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|-------------------------------|--|
| Model | MT8 LRB |
| Description | Portable Mill with a Linear Rail w/ Hydraulic, Air, or Electric Drive. |
| Serial Number | |
| Part Number | 605-5214, 605-5217, 605-5218, 605-5221, 605-5222, 605-5224, |
| Manual Document Number | 900-0026 |
| Manual Revision | Rev D (02/01/2024) |

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WORK HARD

WORK SAFE

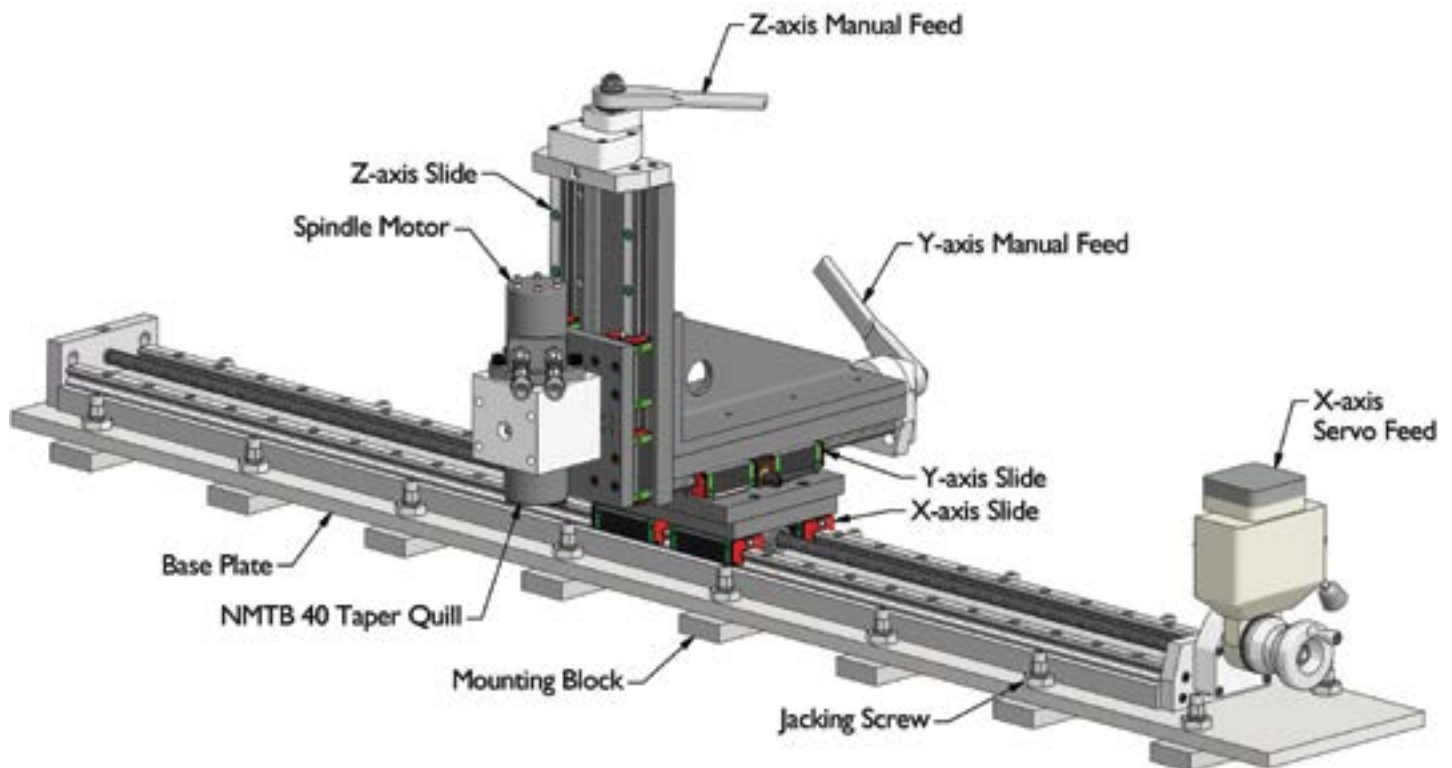
WE BEFORE ME

WELCOME CHALLENGES

WOW THEM

This manual is intended to describe basic setup and operation procedures. Specific applications may require unique configurations or procedures not described in this document. Always use appropriate tools and techniques for your operation.

CAUTION: Keep away from moving parts. Do not reach into moving machinery to clear chips. Always turn off power before adjusting machine or clearing material. Always use appropriate personal protective equipment. Always follow all necessary safety procedures. Always follow site safety regulations. Failure to follow safety procedures may result in injury to the operator or damage to the equipment.



MT8 LRA/LRB Portable Mill

Equipment and Tools:

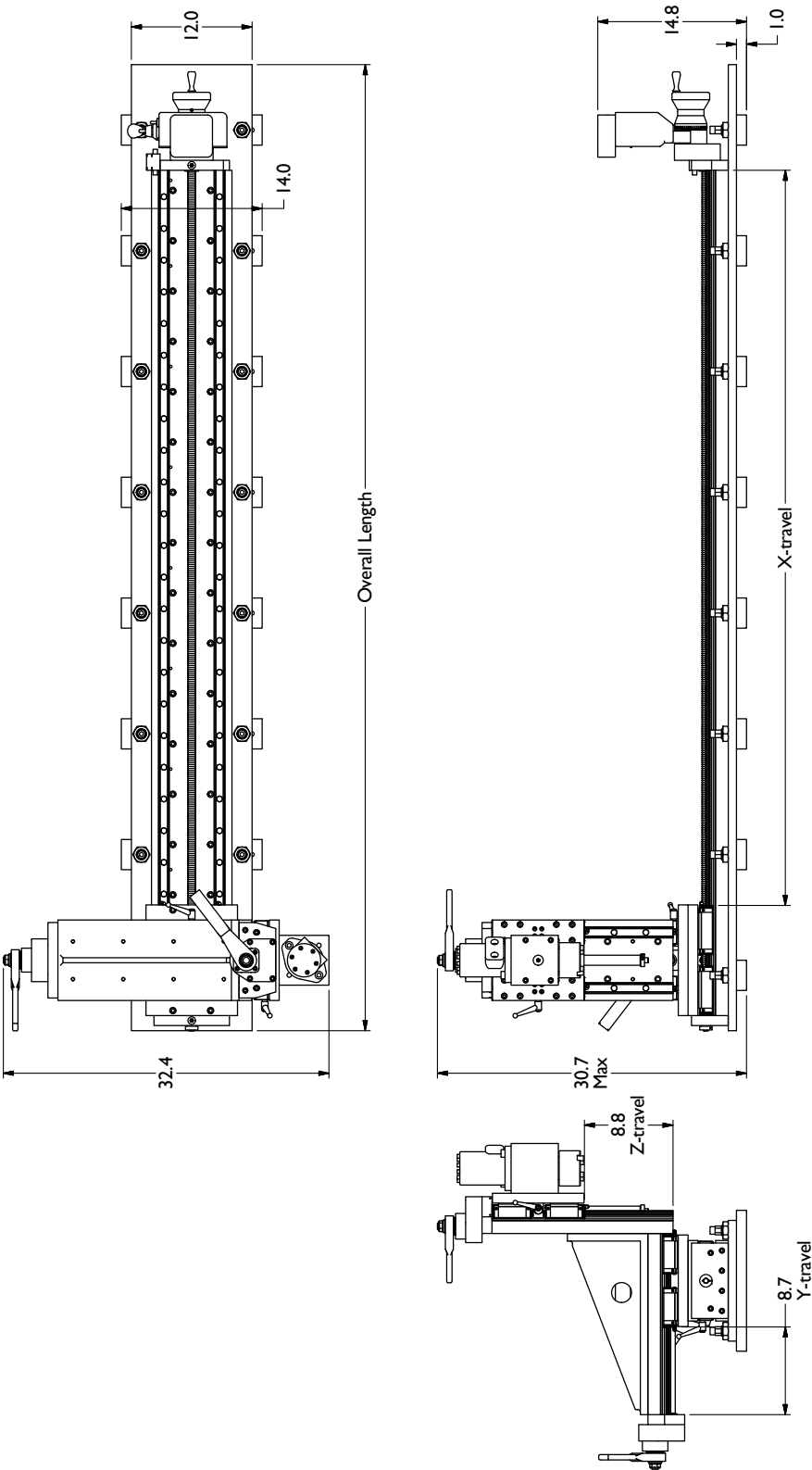
- MT8 LRB Portable Mill
- Hand Tools Kit

System Requirements

Air System: 100 cfm @ 100 psi minimum

Hydraulic System: 10-20 gpm @1000 psi minimum

Electrical System: 115 VAC, single phase, 60 Hz



| Model | X-travel | Overall Length |
|---------------|----------------------|----------------------|
| MT8 LRB x 48 | 37 inches (940 mm) | 60 inches (1524 mm) |
| MT8 LRB x 60 | 49 inches (1245 mm) | 72 inches (1829 mm) |
| MT8 LRB x 72 | 61 inches (1549 mm) | 84 inches (2134 mm) |
| MT8 LRB x 84 | 73 inches (1854 mm) | 96 inches (2438 mm) |
| MT8 LRB x 96 | 85 inches (2159 mm) | 108 inches (2743 mm) |
| MT8 LRB x 120 | 109 inches (2769 mm) | 132 inches (3353 mm) |

Attach the Mill to the Workpiece

NOTE: Use the attachment system best suited to your application. The mill must be firmly secured to the workpiece, without possibility of movement, to ensure safe and accurate milling operations. Never operate the mill without it being properly secured.

Lifting

1. Move the Y-Z slide assembly to the center of the machine to balance the load. Remove two mounting blocks from the base where the lifting eye brackets will be installed. Position the lifting eye brackets to balance the load. Make sure the lifting eyes are securely fastened to the brackets. Use the cap screws to attach the lifting eye brackets to the base. See Figure 1.

NOTE: Lift the machine by the lifting eyes only. Make sure the load is stable and secure. Do not lift the machine by any other point other than the lifting eyes. Always use all four points for lifting.

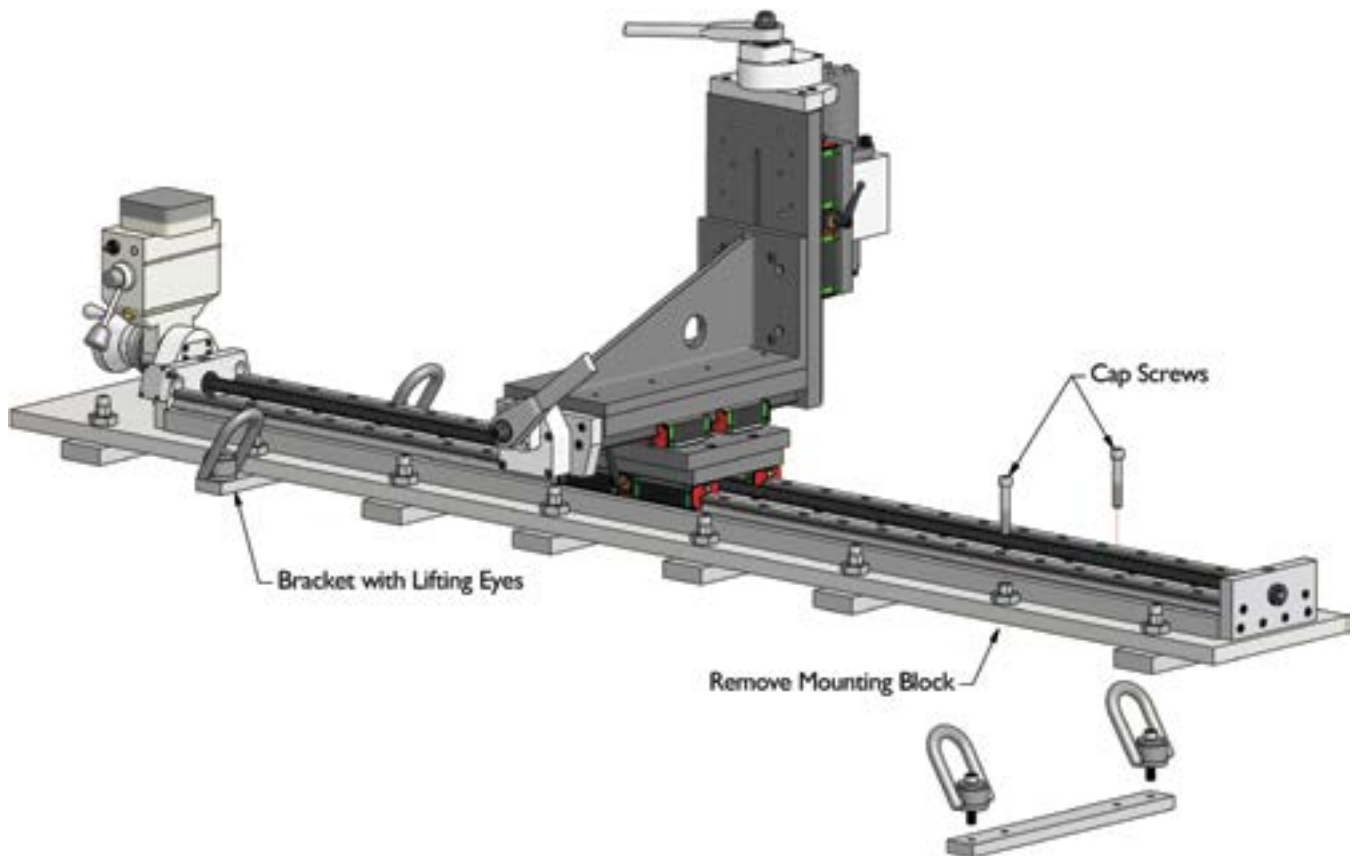


Figure 1 - Install Lifting Eyes

2. Place lifting straps through the lifting eyes. Place the mill at the desired position on the workpiece.
3. Remove the cap screws that attach the lifting eye brackets to the mill base. Remove the lifting eyes from the brackets. Slide the lifting eye brackets from under the mill base and replace with mounting blocks. See Figure 2.

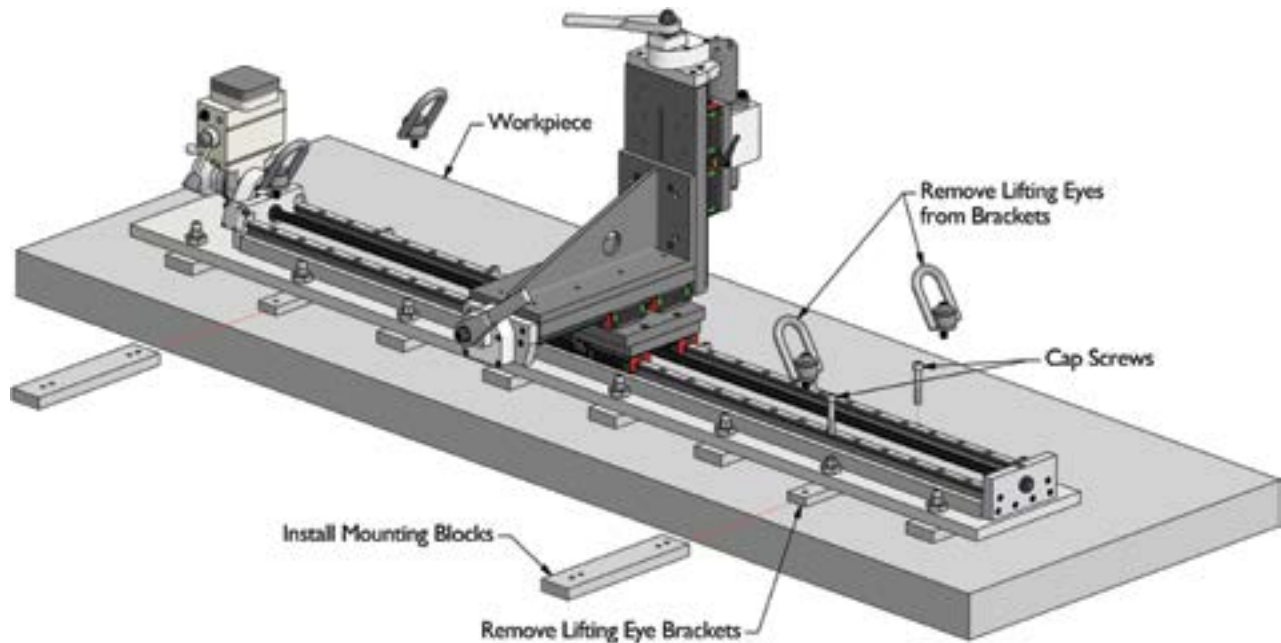


Figure 2 - Remove Lifting Eyes and Install Mounting Blocks

Mounting Block Attachment

1. Clamp or weld the mounting blocks to the workpiece. Make sure the mill is firmly secured to the workpiece. See Figure 3.
2. Level the mill to the workpiece by adjusting the height of the mounting blocks with the jacking screws.

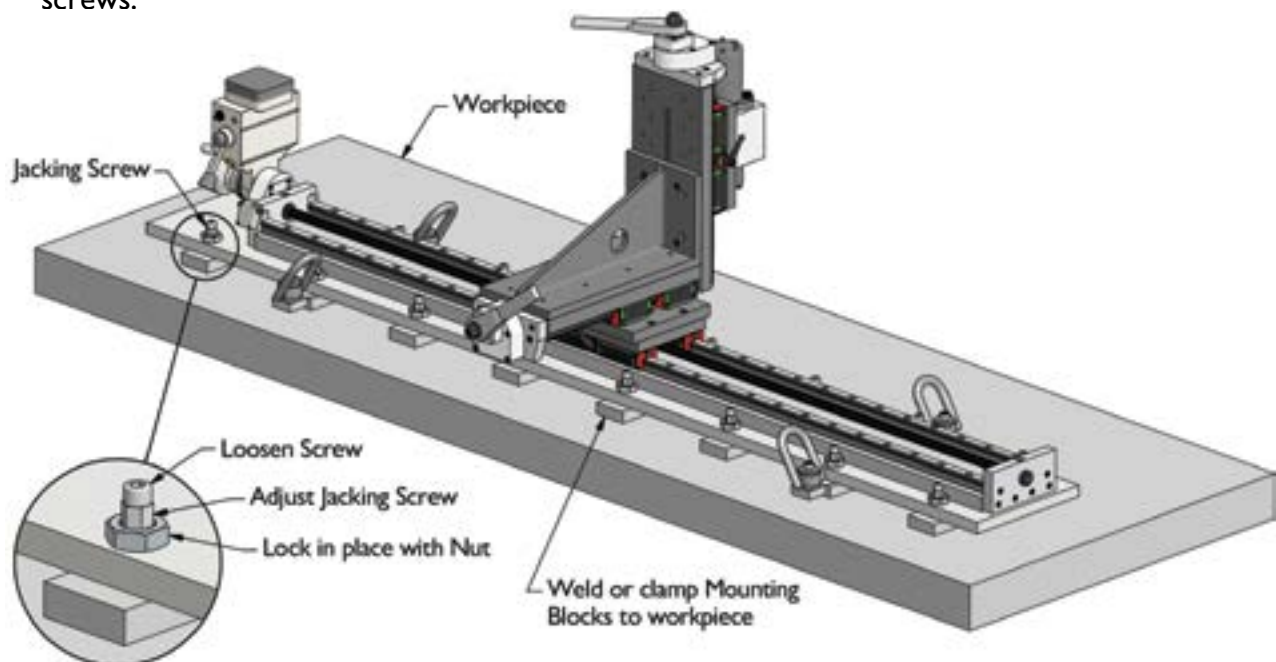


Figure 3 - Mounting Block Attachment

Magnet Mount Attachment

1. See Figure 4. The magnet mounts can be used on any clean, ferrous surface. Thoroughly clean the attachment area to remove scale, rust, paint, or any other materials that may interfere with the magnet holding power. Use enough magnet mounts to fully support the mill.
2. Turn the magnet levers to the locked position to secure the mill to the workpiece. Make sure the mill is securely attached to the workpiece. Level the mill to the workpiece by adjusting the height of the mounting blocks with the jacking screws.

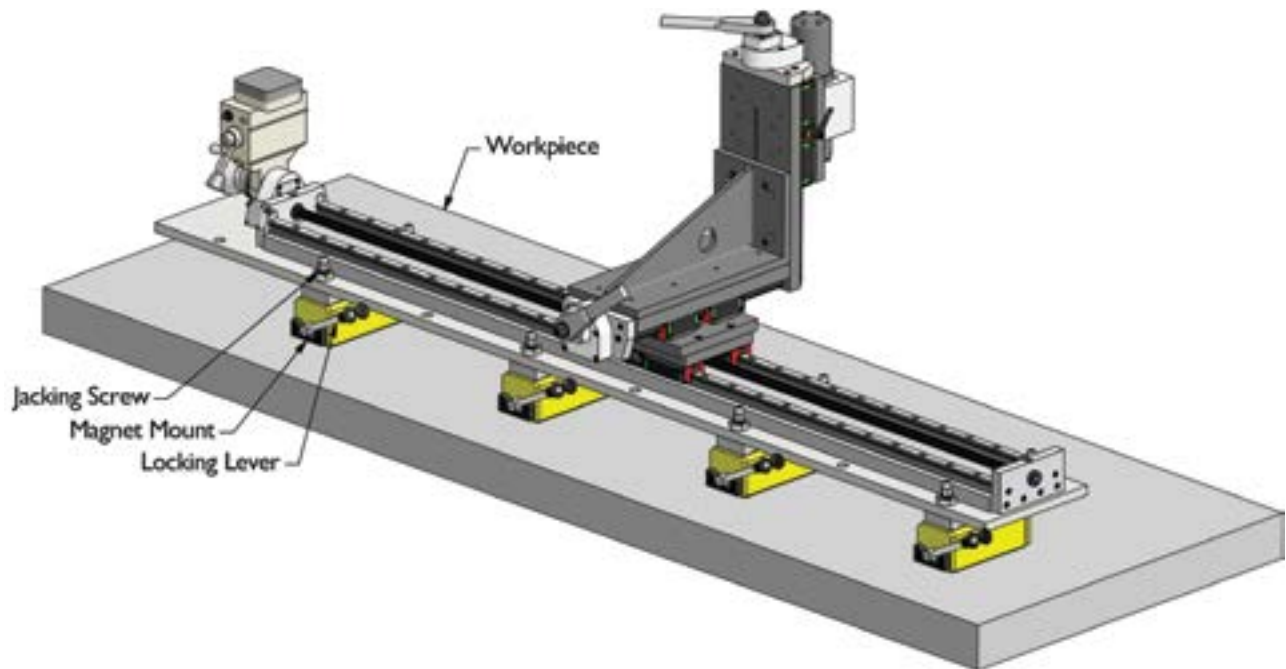


Figure 4 - Magnet Mount Attachment

Function Test

NOTE: Function testing may be completed before attaching the mill to the workpiece. Make sure the mill is safely secured before function testing.

Hydraulic Power Requirements: 10-15 gpm @ 1000 psi continuous pressure

Air Supply Requirements: 100 cfm @ 100 psi

Electrical Requirements: 110V, 50/60 Hz

1. Connect your spindle motor of choice to its power source. Open the spindle motor control valve. Make sure the quill rotates smoothly. Close the control valve. Bleed off excess pressure and disconnect the hoses / power source. See page 10 for motor controls.
2. See Figure 5. Turn the X-axis manual feed knob to position the Y-Z slide assembly to one end of the mill. Set the servo direction control lever to the 'stop' (center) position. Connect the servo motor to a 110V power supply. Turn on the power switch. Move the servo direction control lever in the desired direction of travel to engage the X-axis drive. Make sure the Y-Z slide assembly moves smoothly along the length of the X-axis.

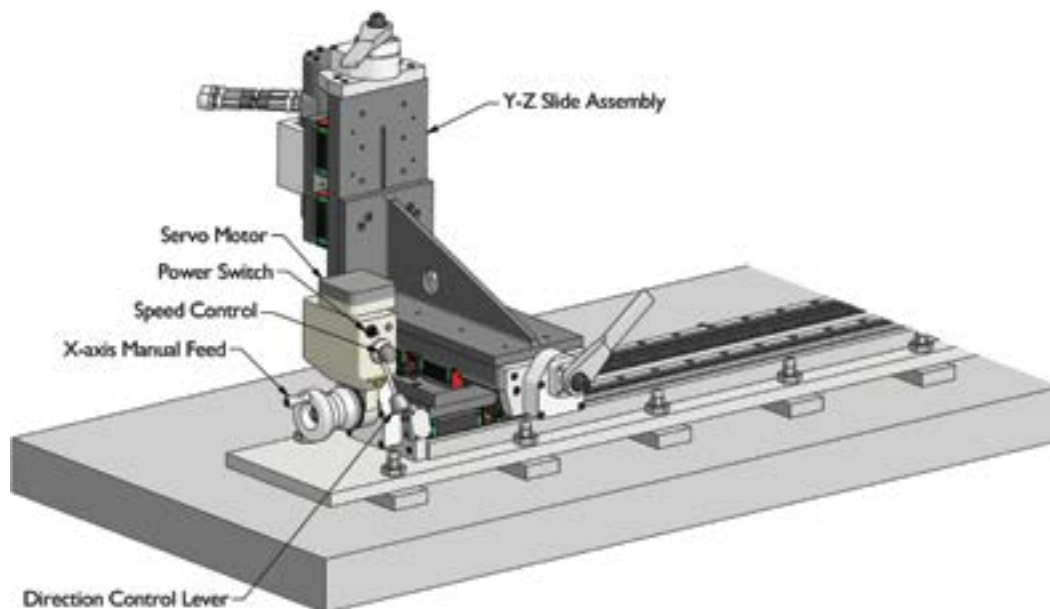


Figure 5 - Function Test Servo Motor

Milling Operation

1. Make sure the mill is properly secured to the workpiece.
2. Install the cutting tool onto the tool holder. Remove the spindle motor to access the 5/8 inch cap screw holding the tool holder in the mill head. Remove the tool holder from the mill head. Assemble the tool holder and cutting tool and assemble the mill head. See Figure 6.

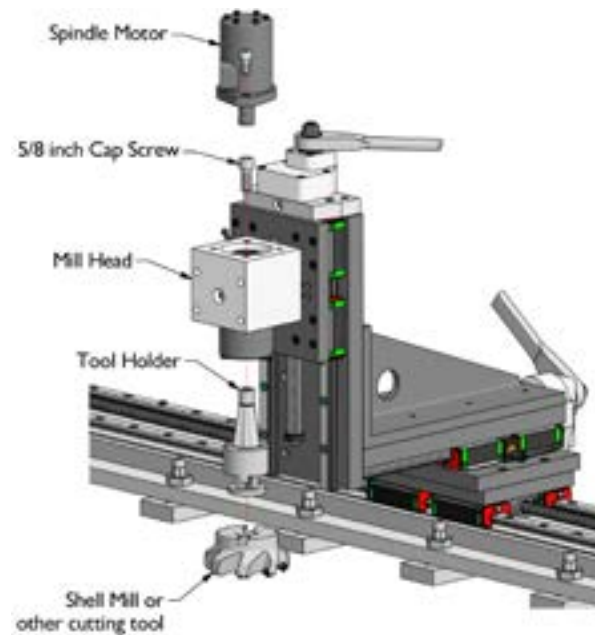


Figure 6 - Install Cutting Tool

3. Connect your spindle motor of choice to its power source. Make sure the servo direction control lever is set to the 'stop' (center) position. Connect the servo motor to a 110V power supply. Start the power supply. Turn on the servo motor power switch. See Figure 7 for servo motor controls.

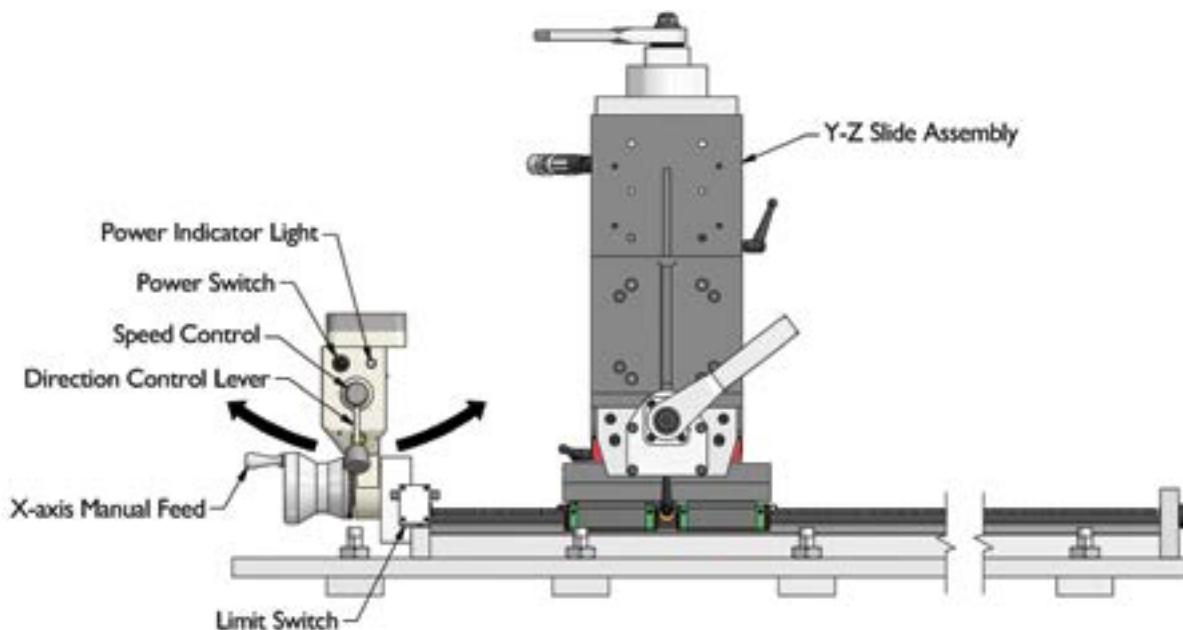


Figure 7 - Servo Controls

4. Open the hydraulic control valve to the spindle motor. Slowly lower the cutter to the desired depth. See page 10 for motor controls.
5. Move the servo direction control lever in the desired direction of travel to engage the X-axis drive. Start the feed slowly, and increase speed as the cut progresses. Use the servo speed control dial to set the

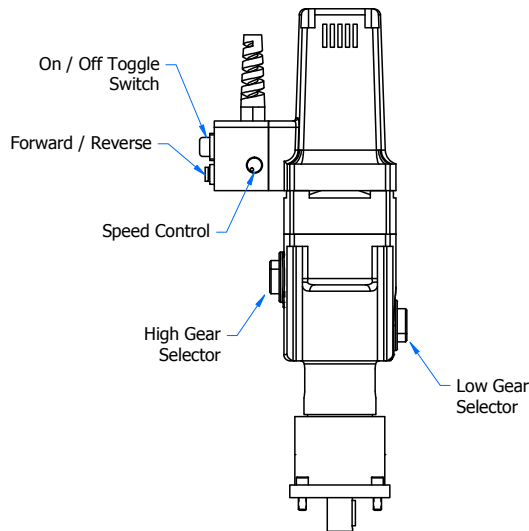
NOTE: Always allow the Y-Z slide assembly to fully stop before changing the X-axis feed direction. Move the direction control lever to the 'stop' position, allow the slide assembly to stop, then change direction. Failure to do so may damage the servo motor.

X-axis feed rate. Use the manual Y and Z feed ratchets to adjust the position of the cutter.

6. Do not allow the Y-Z slide to crash into the end of the mill. The end closest to the servo motor has a limit switch to prevent this, the opposite end does not.
7. When the milling operation is completed move the control lever to the 'stop' (center) position to stop the X-axis feed. Retract the mill cutter from the workpiece. Stop the spindle motor.
8. Stop the power. Bleed off remaining pressure. Disconnect hoses / power source. Disconnect the servo motor power cord.

Motor Operation Controls

Electric Motors: Both the 110 and 220vac electric motors utilize the same controls. The motors have 4 speeds and are also reversible. The motor must be stopped between any gear changes or directional changes. You select the speed via a combination of dial selections on the two gear selectors and control the RPM with the Speed Control knob. See Figure 8.



| Selector Settings | | |
|-------------------|---------------|-----------|
| High Gear | Min / Max RPM | Low Gear |
| O | 30-80 | O |
| OO | 60-130 | O |
| O | 130-360 | OO |
| OO | 210-570 | OO |

Figure 8: Electric Motor Operation

Air Motors: Open the air control valve on the Air Caddy to supply power to the motor. Both the standard upright Air Drive motor and Right Angle Air Drive Motor have a control valve at the top that can be turned Left (LH) or Right (RH) to determine the spin of the drill bit. The locking lever must be pressed down while turning to free it from the catch that locks it in the OFF position. See Figure 9

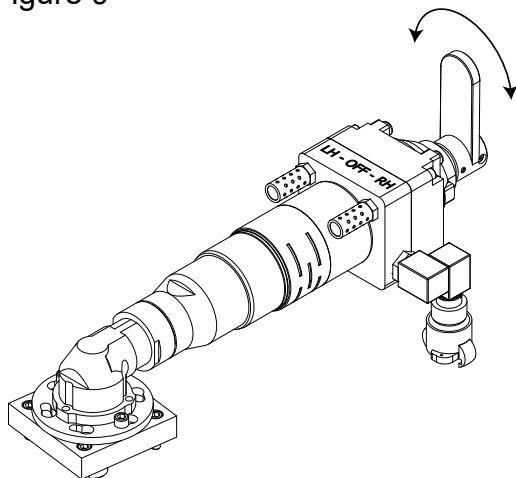


Figure 9: Air Motor Operation

Hydraulic Motor: There is no controls directly on the Hydraulic Motor itself. The spin and speed is all controlled via your hydraulic supply. The direction the fluid flows into the motor is what determines the rotation of the drill. In most cases this can be changed at the source of the hydraulic fluid supply.

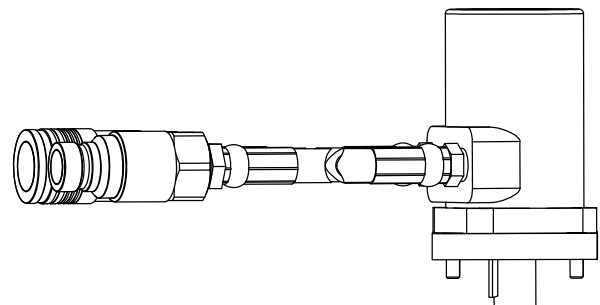


Figure 10: Hydraulic Motor Operation

Cleaning and Maintenance

NOTE: Cleaning and maintenance of the mill is critical to maintain the life and performance of the machine. If the machine is immersed in water, all sub-assemblies must immediately be disassembled, flushed with freshwater, and thoroughly dried. All bearings must be inspected and packed with grease to prevent corrosion. Feed screws and slides must be cleaned, dried and lubricated with grease.

NOTE: Always check for hydraulic fluid leaks before and after each use of the equipment. If any leaks are detected immediately remove the machine from service and replace worn or damaged seals, or repair the component where the leak is found. Do not use the machine in offshore operations if hydraulic leaks are present.

General Maintenance

General maintenance must be performed after each use to ensure the life and performance of the machine.

1. Inspect the entire machine for hydraulic leaks and worn or damaged seals, including hose whips and hydraulic fittings. Replace worn or damaged seals.
2. Make sure the spindle turns smoothly. If the mill head requires maintenance or cleaning, refer to Figure 11 for mill head assembly details. Inspect all components for excessive wear or damage. Clean the mill head bores. Apply a light coat of grease to all housing bore surfaces. Apply anti-seize lubricant to screw threads. Assemble the mill head and attach to the slide assembly.

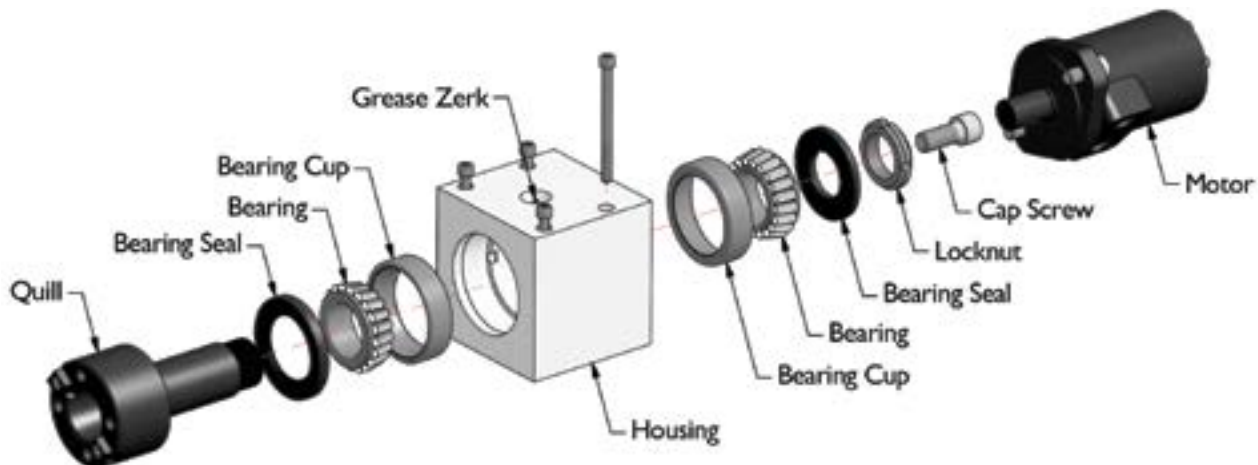


Figure 11 - Mill Head Assembly Maintenance

3. Inspect the X-axis slide assembly for damaged or excessively worn components. See Figure 12 for X-axis slide assembly details. Clean metal chips from the slides and rails with compressed air. Inspect the feed screw for wear or damage. Replace worn or damaged components as necessary. Apply anti-seize lubricant to screw threads.

NOTE: Do not remove the carrier from the linear rails. The carrier retains loose ball bearings, which will fall out of the carrier if removed. If the carrier or linear rails need to be replaced, return the machine to Mactech for service.

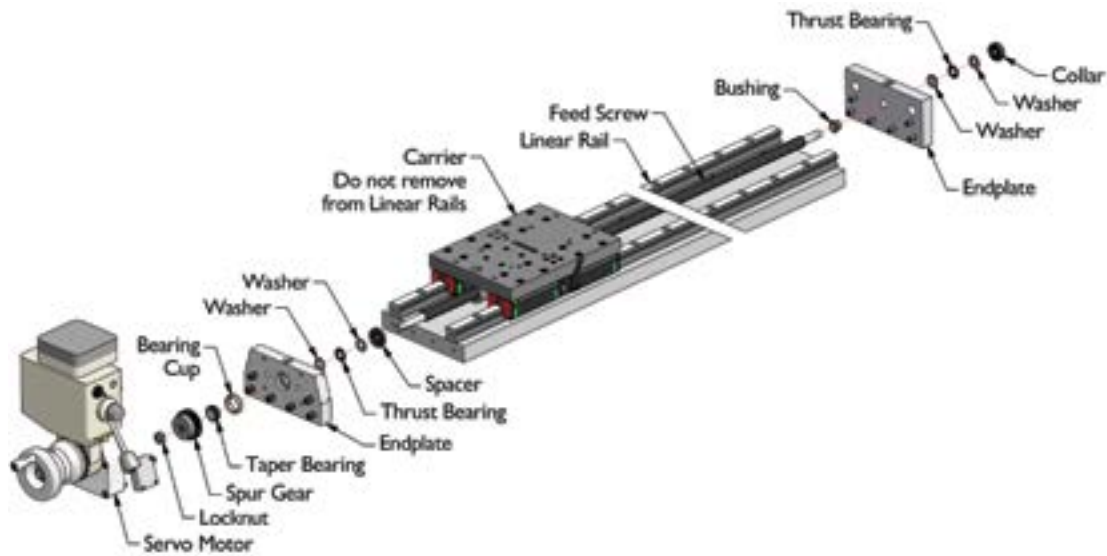


Figure 12 - X-axis Slide Assembly Maintenance

- I. Inspect the Y-Z axis slide assembly for damaged or excessively worn components. See Figure 13 for Y-Z axis slide assembly details. Clean metal chips from the slides and rails with compressed air. Inspect the feed screws for wear or damage. Replace worn or damaged components as necessary. Apply anti-seize lubricant to screw threads.

NOTE: Do not remove the carriers from the linear rails. The carrier retains loose ball bearings, which will fall out of the carrier is removed. If the carrier or linear rails need to be replaced, return the machine to Mactech for service.

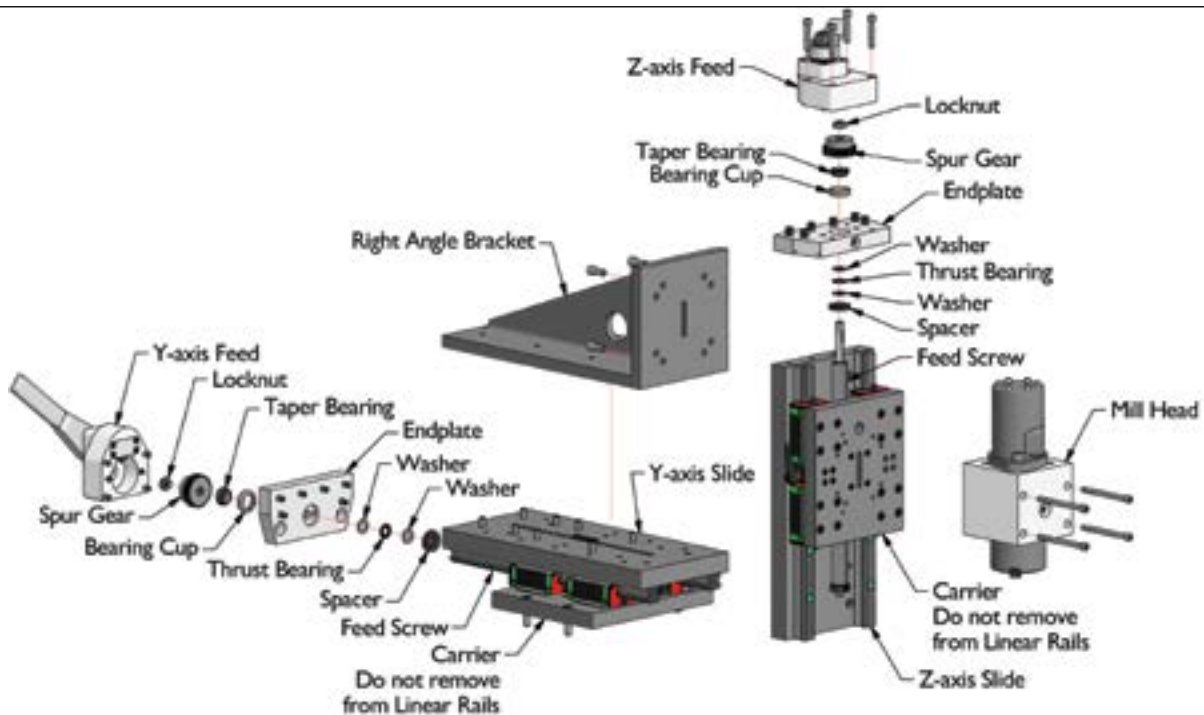


Figure 13 - Y-Z axis Slide Assembly Maintenance

2. Reassemble the mill. Lubricate all grease zerks as shown in Figure 14.

NOTE: Use high-temperature, extreme-pressure multi-purpose grease for lubricating the mill head grease zerk. Use lithium grease for lubricating all other grease zerks.

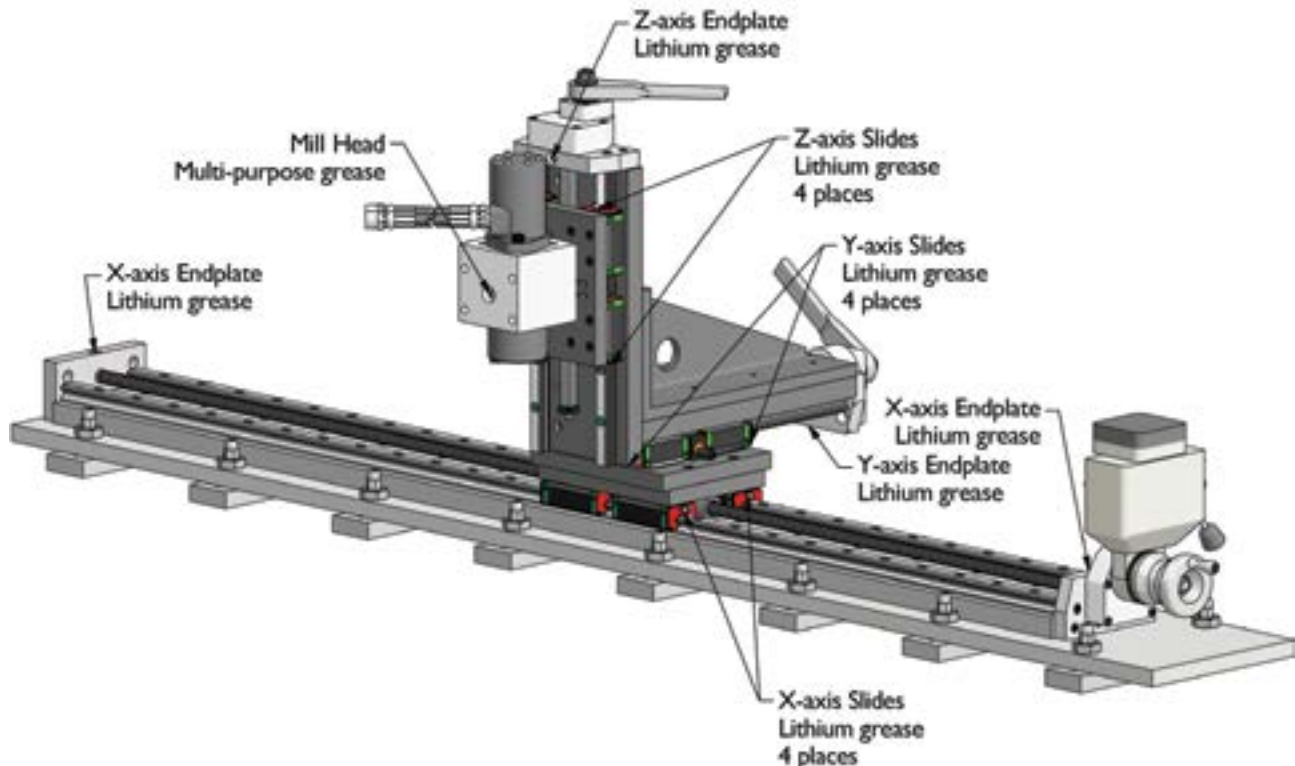


Figure 14 - Lubrication

Storage

NOTE: Follow this procedure when storing the machine in offshore or other harsh environments, and for long-term storage. This storage procedure will help to prevent corrosion and other damage to the machine.

Remove the drive and servo motor and store separately. When storing the machines for long periods, or when storing in offshore environments, apply a light coat of SP400 protectant over the entire outside surface of the machine. Do not apply protectant to rubber seals or any non-metallic parts.

NOTE: Do not over-apply SP400 protectant. SP400 is used as a protectant only, and may damage the machine if used on internal or moving parts. Limit the application to the outside surfaces of the machine.