RIDGID

# Threading Machine Manual

# 1224 Threading Machine

## Safety Symbols

In this operator's manual and on the product, safety symbols and signal words are used to communicate important safety information. This section is provided to improve understanding of these signal words and symbols.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**⚠ DANGER** DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ WARNING** WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

***NOTICE*** NOTICE indicates information that relates to the protection of property.

This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.

This symbol means always wear safety glasses with side shields or goggles when handling or using this equipment to reduce the risk of eye injury.

This symbol indicates the risk of fingers, hands, clothes and other objects catching on or between gears or other rotating parts and causing crushing injuries.

This symbol indicates the risk of fingers, legs, clothes and other objects catching and/or wrapping on rotating shafts causing crushing or striking injuries.

This symbol indicates the risk of electrical shock.

This symbol indicates the risk of machine tipping, causing striking or crushing injuries.

This symbol means do not wear gloves while operating this machine to reduce the risk of entanglement.

This symbol means always use a foot switch when using a threading machine/power drive to reduce the risk of injury.

This symbol means do not disconnect foot switch to reduce the risk of injury.

This symbol means do not block foot switch (lock in ON position) to reduce the risk of injury.

## General Power Tool Safety Warnings*

**⚠ WARNING**

**Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.**

**SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE!**

The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

### Work Area Safety

- **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### Electrical Safety

- **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter**

* The text used in the General Power Tool Safety Warnings section of this manual is verbatim, as required, from the applicable EN 62841-1 Standard. This section contains general safety practices for many different types of power tools. Not every precaution applies to every tool, and some do not apply to this tool.

**plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.

- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply.** Use of a GFCI reduces the risk of electric shock.

## Personal Safety

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Use personal protective equipment. Always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- **Prevent unintentional starting. Ensure the switch is in the OFF position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch ON invites accidents.
- **Remove any adjusting key or wrench before turning the power tool ON.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear loose clothing or jewelry. Keep your hair and clothing away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

## Power Tool Use and Care

- **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn it ON and OFF.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and

grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

### Service

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

## Specific Safety Information

**⚠ WARNING**

**This section contains important safety information that is specific to this tool.**

**Read these precautions carefully before using the 1224 Threading Machine to reduce the risk of electrical shock or other serious injury.**

**SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE!**

Keep this manual with machine for use by the operator.

### Threading Machine Safety Warnings

- **Keep floor dry and free of slippery materials such as oil.** Slippery floors invite accidents.
- **Restrict access or barricade the area from bystanders when the workpiece extends beyond the machine to provide a minimum of one meter (three feet) clearance from the workpiece.** Restricting access or barricading the work area around the workpiece will reduce the risk of entanglement.
- **Do not wear gloves.** Gloves may be entangled by the rotating pipe or machine parts leading to personal injury.
- **Do not use the machine for other purposes such as drilling holes or turning winches.** Other uses or modifying this machine for other applications may increase the risk of serious injury.
- **Secure the machine to a bench or stand. Support long heavy pipe with pipe supports.** This practice will prevent the machine from tipping.
- **While operating the machine, stand on the side where the operator control switch is located.** Operating the machine from this side eliminates need to reach over the machine.
- **Keep hands away from rotating pipe and fittings. Stop the machine before wiping pipe threads or screwing on fittings. Allow the machine to come to a complete stop before touching the pipe.** This practice will reduce the risk of entanglement in rotating parts.
- **Do not use this machine to install or remove (make or break) fitting.** This practice could lead to trapping, entanglement and loss of control.
- **Do not operate the machine without all covers properly installed.** Exposing moving parts increases the probability of entanglement.
- **Do not use this machine if the foot switch is broken or missing.** The foot switch provides safe control of the machine, such as emergency shutoff in case of entanglement.
- **One person must control the work process, machine operation and foot switch.** Only the operator should be in the work area when the machine is running. This helps reduce the risk of injury.
- **Never reach into the machine front chuck or rear centering head.** This will reduce the risk of entanglement.
- **Read and understand these instructions and the instructions and warnings for all equipment and materials being used before operating this tool to reduce the risk of serious personal injury.**

## Description, Specifications And Standard Equipment

### Description

The RIDGID® Model 1224 Threading Machine is an electric motor-driven machine that centers and chucks pipe, conduit and bolt stock and rotates it while cutting, reaming and threading operations are performed. Threading dies are mounted in a variety of available die heads. An integral oiling system is provided to flood the work with thread cutting oil during the threading operation.

With proper optional equipment, the 1224 Threading Machine can be used to thread larger pipe, short or close nipples or for roll grooving. The 1224 machine can also be used to cut standard grooves on pipes and to cut or strip the saran and plastic lined pipes.

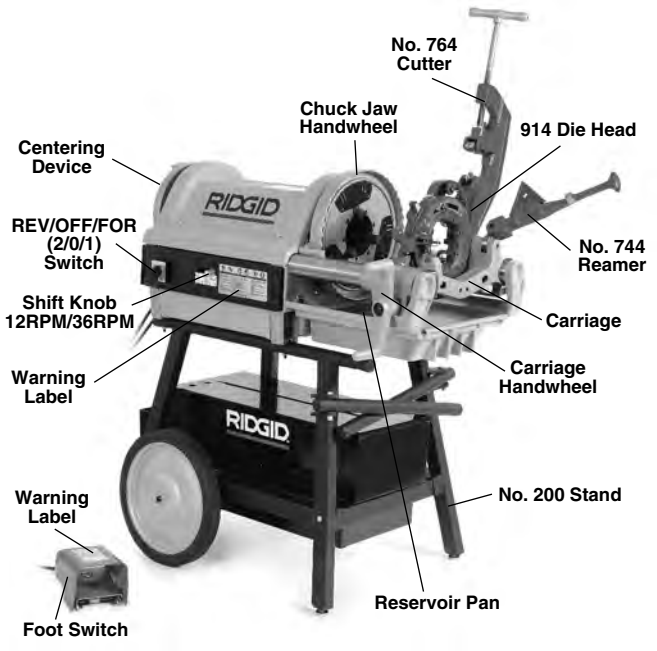


**Figure 1 – 1224 Threading Machine**

## Specifications

| | |
|---|---|
| Threading Capacity | Pipe 1/4" to 4" (6 to 100 mm)<br>Bolt 1/4" to 2" (6 to 50 mm) |
| LH Threads | With proper Die Heads |
| Motor: | |
| Type | Induction Type, Single Phase (contact RIDGID for three phase options available) |
| Power | 1 1/2 HP (1.12 kW) |
| Volts | 120 V, 60 Hz; 220/240 V, 50 Hz; Other Voltages Available *(See RIDGID Catalog)* |
| Operating Speed | 12/36 RPM |
| Controls | Rotary Type REV/OFF/FOR (2/0/1) Switch and ON/OFF Foot switch |
| Front Chuck | Hammer-Type with Replaceable Rocker-Action Jaw Inserts |
| Rear Centering Device | Cam Action |
| Die Heads | See RIDGID Catalog for Available Die Heads |
| Cutter | Model 764, 1/4" - 4", Full-Floating, Self-Centering Cutter |
| Reamer | Model 744, 1/4" - 4" Blade-Type |
| Oil System | 5 qt (4,7 l) Self-Priming, Gerotor-Type, Automatic-Reversing, Constant Flow |
| Weight | 509 lb (231 kg) |
| Sound Pressure ($L_{PA}$)* | 79 dB(A), K=3 |
| Sound Power ($L_{WA}$)* | 87 dB(A), K=1.5 |

* Sound measurements are measured in accordance with a standardized test per Standard EN 62481-1.
- Sound emissions may vary due to your location and specific use of these tools.
- Daily exposure levels for sound need to be evaluated for each application and appropriate safety measures taken when needed. Evaluation of exposure levels should consider the time a tool is switched off and not in use. This may significantly reduce the exposure level over the total working period.

## Standard Equipment

Refer to the RIDGID catalog for details on equipment supplied with specific machine catalog numbers.

The Threading Machine serial number plate is located on the end of the base. The last 4 digits indicate the month and year of the manufacture. (12 = month, 14 = year).


**Figure 2 – Machine Serial Number**

**NOTICE** Selection of appropriate materials and installation, joining and forming methods is the responsibility of the system designer and/or installer. Selection of improper materials and methods could cause system failure.

Stainless steel and other corrosion resistant materials can be contaminated during installation, joining and forming. This contamination could cause corrosion and premature failure. Careful evaluation of materials and methods for the specific service conditions, including chemical and temperature, should be completed before any installation is attempted.

# Machine Assembly

**⚠ WARNING**

**To reduce the risk of serious injury during use, follow these procedures for proper assembly.**

**Failure to mount the threading machine to a stable stand or bench may result in tipping and serious injury.**

**REV/OFF/FOR switch should be OFF and machine unplugged before assembly.**

**Use proper lifting techniques. The RIDGID 1224 Threading Machine weighs 509 lbs. (231 kg).**

### Mounting on Stands

The Threading Machine can be mounted on various RIDGID Threader Stands. Refer to RIDGID catalog for stand information and to the respective Stand Instruction Sheet for mounting instructions.

### Mounting on Bench

The machine can be mounted on a level, stable bench. To mount the unit on a bench, use four 3/8" bolts in holes provided at each corner of the machine base. Base hole spacing is 19.88" × 15.5" (505 mm x 394 mm). Tighten securely.

## Pre-Operation Inspection

**⚠ WARNING**

**Before each use, inspect your threading machine and correct any problems to reduce the risk of serious injury from electric shock, crushing and other causes, and to help prevent threading machine damage.**

1. Make sure that the threading machine is unplugged and the REV/OFF/FOR switch is in OFF position.
2. Clean any oil, grease or dirt from the threading machine, including the handles and controls. This aids inspection and helps prevent the machine or control from slipping from your grip. Clean and maintain the machine per the maintenance instructions.
3. Inspect the threading machine for the following:
   - Condition of the cords and plug for damage or modification.
   - Proper assembly, maintenance and completeness.
   - Any broken, worn, missing, misaligned or binding parts or other damage.
   - Presence and operation of the foot switch. Confirm that foot switch is attached, in good condition, that it cycles smoothly and does not stick.
   - Presence and readability of warning labels *(Figure 1)*.
   - Condition of the dies, cutter wheel and reamer cutting edges. Dull or damaged cutting tools increase required force, produce poor results and increase the risk of injury.
   - Any other condition which may prevent safe and normal operation.

   If any problems are found, do not use the threading machine until the problems have been repaired.
4. Inspect and maintain any other equipment being used per its instructions to make sure it is functioning properly.

## Machine and Work Area Set-Up

**⚠ WARNING**

**Set up the Threading Machine and the work area according to these procedures to reduce the risk of injury from electric shock, machine tipping, entanglement, crushing and other causes, and to help prevent threading machine damage.**

**Secure machine to stable stand or bench. Properly support pipe. This will reduce the risk of falling pipe, tipping and serious injury.**

**Do not use the Threading Machine without a properly operating foot switch. A foot switch provides better control by letting you shut off the machine motor by removing your foot.**

1. Check work area for:
   - Adequate lighting.
   - Flammable liquids, vapors or dust that may ignite. If present, do not work in area until source is identified, removed or corrected, and area is completely ventilated. The threading machine is not explosion proof and can cause sparks.
   - Clear, level, stable, dry location for all equipment and operator.
   - Good ventilation. Do not use extensively in small, enclosed areas.
   - Properly grounded electrical outlet of the correct voltage. Check the machine serial plate for required voltage. A three-prong or GFCI outlet may not be properly grounded. If in doubt, have outlet inspected by a licensed electrician.

2. Inspect the pipe to be threaded and associated fittings. Determine the correct equipment for the job, *see Specifications*. Do not use to thread anything other than straight stock. Do not thread pipe with fittings or other attachments. This increases the risk of entanglement.
3. Transport equipment to work area. See *Preparing Machine for Transport* for information.
4. Confirm equipment to be used has been properly inspected and assembled.
5. Confirm that the REV/OFF/FOR switch is in the OFF position.
6. Check that the correct dies are in the die head and are properly set. If needed, install and/or adjust the dies in the die head. See *Die Head Set-Up and Use* section for details.
7. Swing the cutter, reamer and die head up away from the operator. Make sure they are stable and will not fall in the work area.
8. If pipe will extend past the chip tray in the front of the machine or more than 2' (0.6 m) out of the rear of the machine, use pipe stands to support the pipe and prevent the pipe and threading machine from tipping or falling. Place the pipe stands in line with machine chucks, approximately 1/3 of distance from end of the pipe to the machine. Longer pipe may need more than one pipe stand. Only use pipe stands designed for this purpose. Improper pipe supports or supporting the pipe by hand can cause tipping or entanglement injuries.
9. Restrict access or set-up guards or barricades to create a minimum of 3' (1 m) clearance around the threading machine and pipe. This helps prevent non-operators from contacting the machine or pipe and reduces the risk of tipping or entanglement.
10. Position the foot switch as shown in *Figure 18* to allow a proper operating position.
11. Check the level of RIDGID Thread Cutting Oil. Remove the draw tray assembly and insert assembly; see that the filter screen assembly is fully submerged in oil. *See Oil System Maintenance*.
12. With the REV/OFF/FOR switch in OFF position, run the cord along a clear path. With dry hands, plug the power cord into the properly grounded outlet. Keep all connections dry and off the ground. If the power cord is not long enough use an extension cord that:
    - Is in good condition.
    - Has a three-prong plug like on the threading machine.
    - Is rated for outdoor use.
    - Has sufficient wire size. For extension cords up to 50' (15.2 m) long use 14 AWG (2.5 $mm^2$) or heavier. For extension cords 50'-100' (15.2 m - 30.5 m) long use 12 AWG (2.5 $mm^2$) or heavier.
13. Check the Threading Machine for proper operation. With hands clear:
    - Move the REV/OFF/FOR switch to the FOR position. Press and release the foot switch. Chuck should rotate counter-clockwise when viewed from the carriage end *(see Figure 22.)* Repeat for REV position – chuck should rotate clockwise. If the threading machine does not rotate in the correct direction, or the foot switch does not control the machine operation, do not use the machine until it has been repaired.
    - Depress and hold the foot switch. Inspect the moving parts for misalignment, binding, odd noises or any other unusual conditions. Remove foot from the foot switch. If any unusual conditions are found, do not use the machine until it has been repaired.
    - Place die head in the use position. Depress and hold the foot switch. Check for oil flow through the die head. Remove foot from the foot switch. If needed, see *"Oil System Maintenance"* section.
14. Move the REV/OFF/FOR switch to the OFF position, and with dry hands unplug the machine.

## Die Head Set-Up and Use

The 1224 Threading Machine can be used with a variety of RIDGID Die Heads to cut pipe and bolt threads. *See the RIDGID catalog* for available die heads.

Die Heads require one set of dies for each of the following pipe size ranges: (1/4" and 3/8"), (1/2" and 3/4"), (1" through 2"), and (2 1/2" through 4"). NPT/NPSM dies must be used in NPT die heads and BSPT/BSPP dies must be used n BSPT die heads – The size bar is marked for each.

Die heads using Bolt dies require a dedicated set of dies for each specific thread size.

*See the RIDGID catalog for dies available for your die head.*

Always cut a test thread to confirm proper thread size after changing/adjusting the dies.

### Removing/Installing Die Head

Insert/remove Die Head Post into mating hole in carriage. When fully inserted, the Die Head will be held in

place. When it is installed, the Die Head can be pivoted on post to align it with pipe or it can be swung up and out of the way to allow use of cutter or reamer.

## Quick-Opening Die Heads

Quick opening die heads include Models 713/913 and 541/542 Bolt. Quick opening die heads are manually opened and closed for user specified thread length.

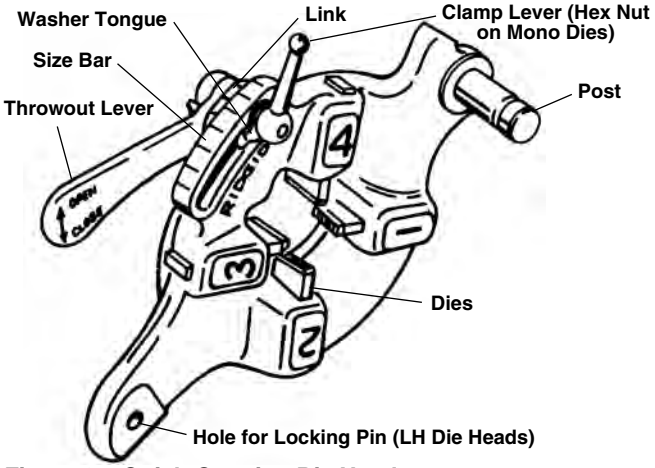


**Figure 3 – Quick-Opening Die Head**

### Inserting/Changing the Dies

1. Place the die head with numbers facing up.
2. Move throwout lever to OPEN position *(Figure 4)*.

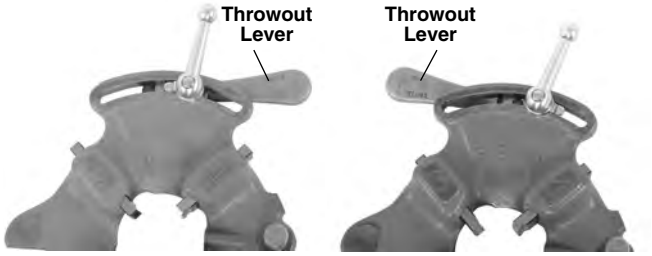


**Figure 4 – Open/Closed Lever Position**

3. Loosen clamp lever approximately three turns.
4. Lift tongue of washer out of slot in size bar. Move washer to end of slot *(Figure 5)*.
5. Remove dies from the die head.
6. Insert appropriate dies into the die head, numbered edge up until the indicator line is flush with the edge of the die head *(see Figure 5)*. Numbers on the dies must correspond with those on the die head slots. Always change dies as sets – do not mix dies from different sets.

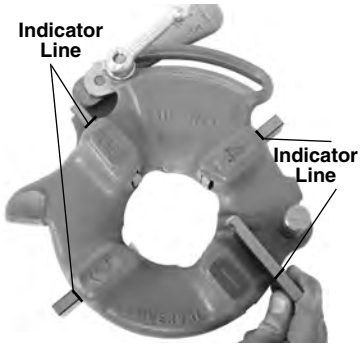


**Figure 5 – Inserting Dies**

7. Move link index mark to align with desired size mark on size bar. Adjust die insertion as needed to allow movement. Washer tongue should be in slot to left.
8. Tighten clamp lever.

### Adjusting Thread Size

1. Install the die head per the Threading Machine instructions and move the die head into threading position.
2. Loosen clamp lever.
3. Start with link index mark aligned with desired size mark on size bar. On Mono and Bolt die heads, set link mark at line in size bar. For bolt threads with Universal die head, set all bolt dies at BOLT line on size bar *(Figure 6)*.

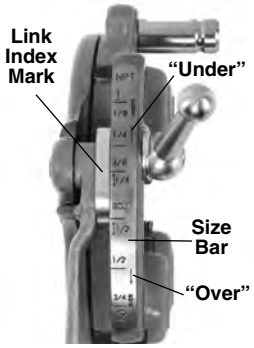


**Figure 6 – Adjusting Thread Size**

4. If thread size needs to be adjusted, set the link index mark slightly off the mark on size bar in the direction of OVER (larger diameter thread, less turns of fitting engagement) or UNDER (smaller thread diameter, more turns of fitting engagement) markings.
5. Tighten clamp lever.

### Opening the Die Head at the End of the Thread

At the end of the thread:

- Pipe Threads – End of threaded pipe is flush with the end of the number 1 die.
- Bolt Threads – Thread the desired length – watch closely for any interference between the parts.

Move the throwout lever to the OPEN position, retracting dies.

## Self-Opening Die Heads

Self-Opening Die Heads include Model 711 NPT RH and 911 BSPT RH die heads. For 1/2" through 2" pipe sizes, a trigger can be used to open the die head when the thread is complete. For 1/8" to 3/8" sizes, bolt and straight threads, and if desired for the other sizes, the die head is manually opened when the thread is complete.

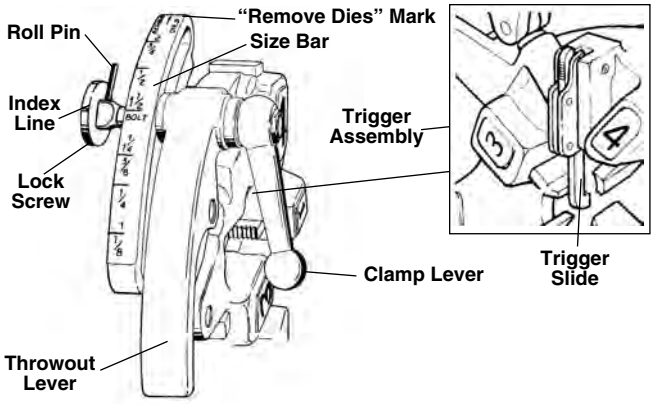


**Figure 7 – Universal Self-Opening Die Head**

### Inserting/Changing the Dies

1. Place the die head with numbers facing up.
2. Make sure the trigger assembly is released and die head OPEN by pulling the trigger slide away from the die head. Stay clear of the spring loaded Throwout Lever while releasing trigger assembly.

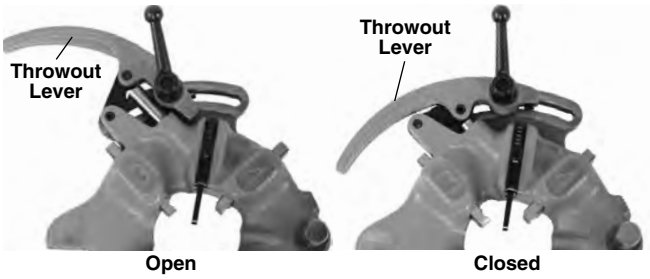


**Figure 8 – Open/Closed Position**

3. Loosen clamp lever approximately six full turns.
4. Pull lock screw out of size bar slot so roll pin will bypass slot. Position size bar so that the index line on lock screw is aligned with the REMOVE DIES mark.
5. Remove dies from the die head.
6. Insert appropriate dies into the die head, numbered edge up until the indicator line is flush with the edge of the die head *(see Figure 9)*. Numbers on the dies must correspond with those on the die head slots. Always change dies as sets – do not mix dies from different sets.
7. Move size bar so index line on lock screw is aligned with desired size mark. Adjust die insertion as needed to allow movement.

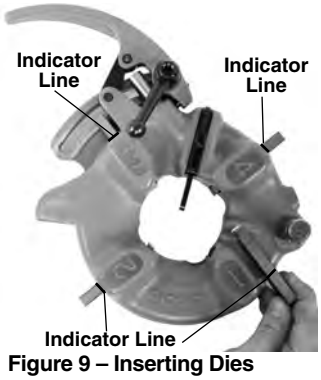


**Figure 9 – Inserting Dies**

8. Make sure roll pin points toward REMOVE DIES mark.
9. Tighten the clamp lever.

### Adjusting Thread Size

1. Install the die head per the Threading Machine Instructions and move the die head into threading position.
2. Loosen clamp lever.
3. Position size bar so index line on lock screw is aligned with desired size mark on size bar.
4. If thread size needs to be adjusted, set the lock screw index line slightly off the mark on size bar in the direction of OVER (larger diameter thread, less turns of fitting engagement) or UNDER (smaller thread diameter, more turns of fitting engagement) markings.
5. Tighten clamp lever.

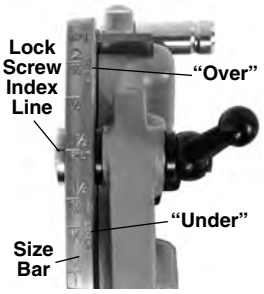


**Figure 10 – Adjusting Thread Size**

### Trigger Slide Adjustment

Position the Trigger Slide for the size of pipe being threaded *(see Figure 11).*

- 1/2" and 3/4" – End of pipe should hit foot of Trigger Slide.
- 1" to 2" – End of pipe should hit the shank of the Trigger Slide.

For

- 1/8", 1/4" and 3/8" pipe
- Longer or shorter threads
- Bolt threading

Push trigger slide up and out of the way. Die head must be opened manually.

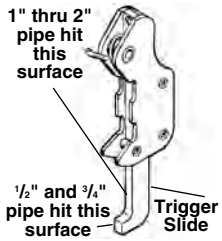


**Figure 11– Setting the Trigger**

### Opening the Die Head at the End of the Thread

When using trigger it will contact the end of pipe, causing the die head to automatically open. Stay clear of the spring loaded Throwout Lever when it releases.

To open the die head manually (with trigger slide up), at the end of the thread:

- Tapered Pipe Threads – End of pipe is flush with the end of the number 1 die.
- Bolt and Straight Threads – Thread the desired length – watch closely for any interference between the parts.

Move the throwout lever to the OPEN position, retracting dies.

## 714/914 Receding Self-Opening Die Heads

The Model 714 (NPT/NPSM) and 914 (BSPT/BSPP) receding self-opening die heads are used on 1224 threading machine for 2½" to 4" pipe sizes. These die heads can be adjusted to cut either tapered or straight pipe threads.

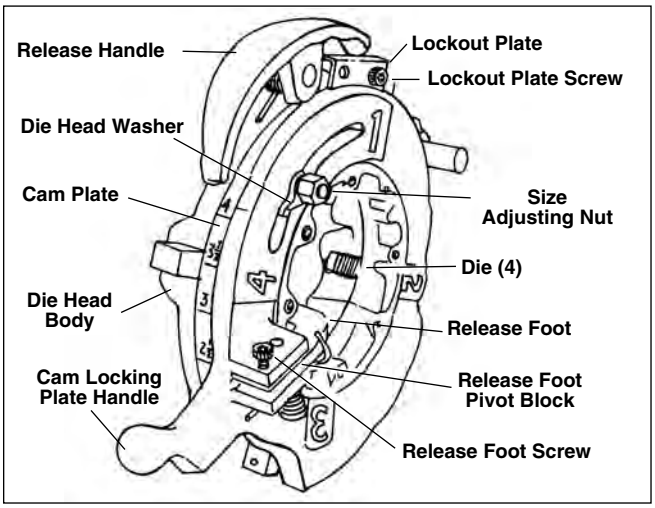


**Figure 12 – Receding Self-Opening Die Head**

### Inserting/Changing the Dies

1. Place the die head with numbers facing up.
2. Make sure the release foot is released/Die head is open by pulling the release foot away from the die head. Stay clear of spring loaded moving parts while releasing.
3. Loosen the adjusting nut and lift die head washer foot out of the slot.

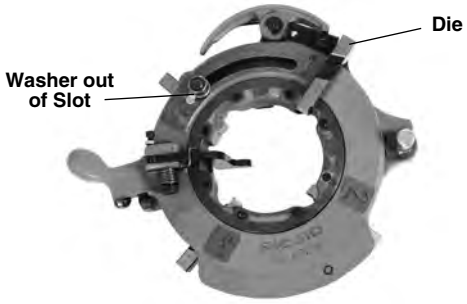


**Figure 13 – Inserting Dies**

4. Rotate cam toward larger pipe sizes until adjusting screw reaches end of slot.
5. Remove dies from die head.

   Insert appropriate dies into the die head, numbered edge up. Numbers on the dies must correspond with those on the die head slots *(see Figure 13)*. Dies include a pocket that engages a ball detent in the die head when properly installed Always change dies as sets – do not mix dies from different sets.
6. Rotate cam to size setting desired.
7. Washer tongue should be in slot to left. Tighten adjusting nut.

### Adjusting Thread Size

1. Install the die head per the Threading Machine Instructions and move the die head into threading position.
2. Loosen the adjusting nut.
3. Position index line with desired size mark on cam/size bar.
4. If thread size needs to be adjusted, set the index line slightly off the mark on the cam/size bar toward larger sizes (larger thread diameter, less turns of fitting engagement) or toward smaller sizes (smaller thread diameter, more turns of fitting engagement) as shown on the cam/size bar.

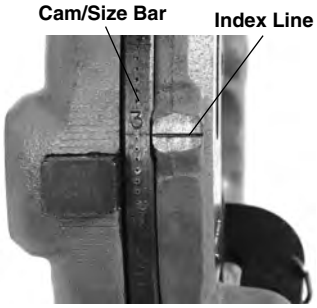


**Figure 14 – Adjusting Thread Size**

5. Tighten the adjustment nut.

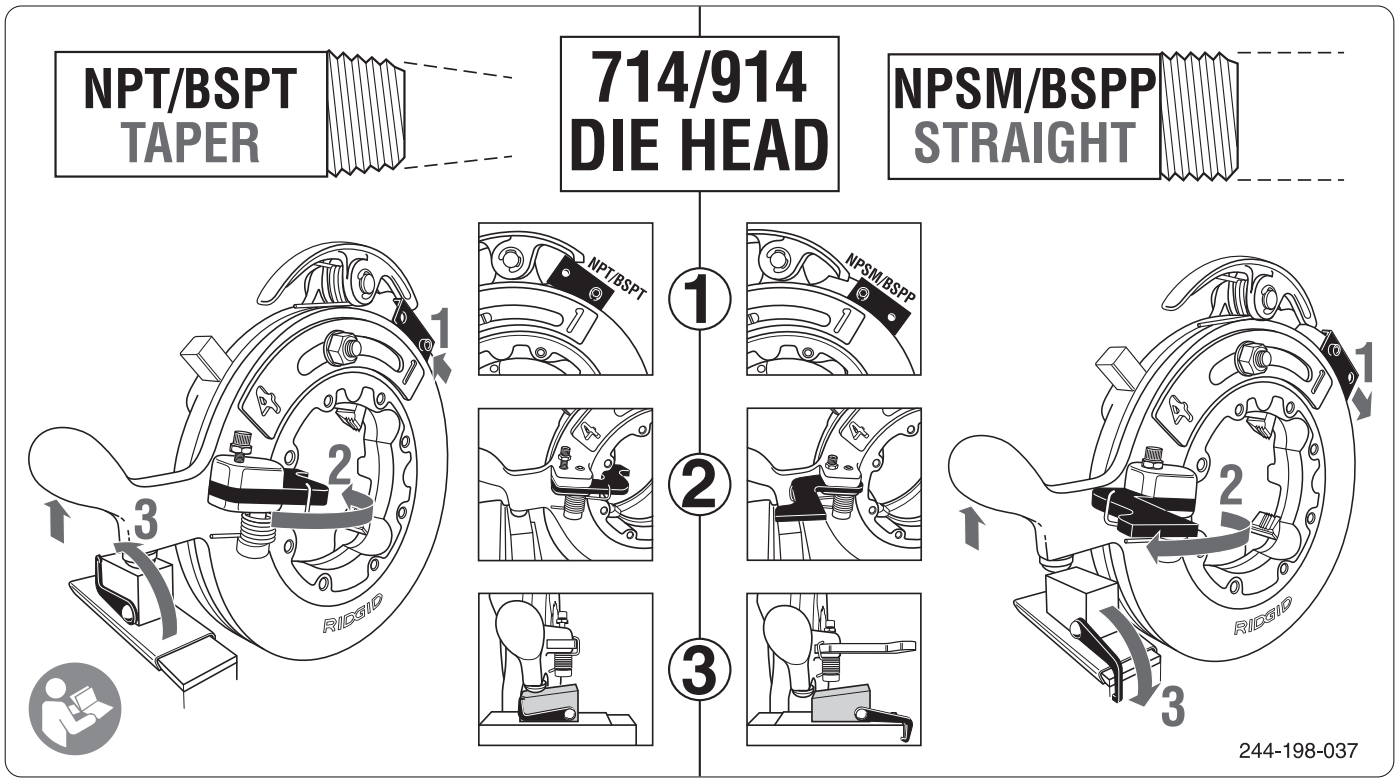


**Figure 15 – Adjusting for Tapered or Straight Pipe Threads**

### Adjusting for Tapered or Straight Pipe Threads

1. For tapered threads (NPT or BSPT depending on die head), referencing *Figure 15*, adjustments are “IN”.
   (1) Position the lockout plate **in** toward the release handle. Secure the lock out plate with the screw through the hole marked “NPT/BSPT”.
   (2) Move the release foot **in** towards the pipe.
   (3) Unhook the latch and allow sine bar to move **in** toward the die head. Rotate the latch next to the sine bar to protect it.
2. For straight threads (NPSM or BSPP depending on die head), referencing *Figure 15*, the adjustments are “OUT”.
   (1) Position the lockout plate **out** away from the release handle. Secure the lock out plate with the screw through the hole marked “NPSM/BSPP”.
   (2) Move the release foot **out** away from the pipe and tighten release foot screw to retain in place.
   (3) Pull the sine bar **out** away from the die head and rotate the latch down to hook it to the carriage. There is a hole in the end of the carriage for the latch to engage in.

### Preparing the Die Head to Thread

Lower the die head down into the threading position.

Firmly push up on the cam locking plate handle to cock/-close the die head *(Figure 16)*.

- When adjusted for tapered threads, the release foot will latch in toward the pipe, and the spherical surface on the cam locking plate will rest on the sine bar.
- When adjusted for straight threads, the release handle will engage the notch in the cam lock plate. The die head will not touch the sine bar.

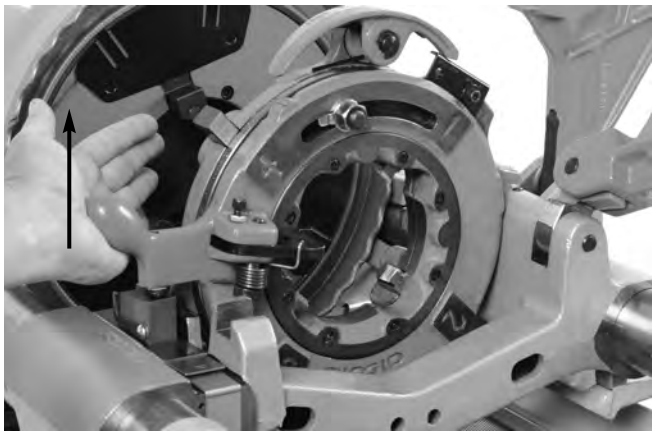

**Figure 16 – Closing the Receding Die Head**

**Opening the Die Head at the End of the Thread**

- Tapered threads: at the end of the thread the spherical surface on the cam locking plate will move off of the sine bar, opening the die head.
- Straight threads: thread the desired length and open the die head manually by depressing the release handle – watch closely for any interference between parts.

## Operating Instructions

**⚠ WARNING**

**Do not wear gloves or loose clothing. Keep sleeves and jackets buttoned. Loose clothing can become entangled in rotating parts and cause crushing and striking injuries.**

**Keep hands away from rotating pipe and parts. Stop the machine before wiping threads or screwing on fittings. Do not reach across the machine or pipe. To prevent entanglement, crushing or striking injuries, allow machine to come to a complete stop before touching the pipe or machine chucks.**

**Do not use this machine to make or break (tighten or loosen) fittings. This can cause striking or crushing injuries.**

**Do not use a threading machine without a properly operating foot switch. Never block a foot switch in the ON position so that it does not control the threading machine. A foot switch provides better control by letting you shut off the machine motor by removing your foot. If entanglement should occur and power is maintained to the motor, you will be pulled into the machine. This machine has high torque and can cause clothing to bind around your arm or other body parts with enough force to crush or break bones or cause striking or other injuries.**

**One person must control both the work process and the foot switch. Do not operate with more than one person. In case of entanglement, the operator must be in control of the foot switch.**

**Follow operating instructions to reduce the risk of injury from entanglement, striking, crushing and other causes.**

1. Make sure that machine and work area is properly set up and that the work area is free of bystanders and other distractions. The operator should be the only person in the area while the machine is operated.

   The cutter, reamer and die head should be up away from the operator, do not place in the operating position. Make sure they are stable and will not fall. Fully open the chucks of the threading machine.

2. Insert pipe shorter than 2' (0,6 m) from the front of the machine. Insert longer pipes through either end so that the longer section extends out beyond the rear of the Threading Machine. Confirm that pipe stands are properly placed.
3. If needed, mark the pipe. Place pipe so that the area to be cut or end to be reamed or threaded is approximately 6" (150 mm) from the front of the chuck. If closer, the carriage may strike the machine during the threading and damage the machine.
4. Turn the rear centering device clockwise (viewed from rear of machine) to close down onto pipe. Make sure that the pipe is centered in the inserts. This improves pipe support and gives better results.
5. Turn the front chuck handwheel counterclockwise (viewed from front of machine) to close down onto pipe. Make sure that the pipe is centered in the inserts. Use repeated and forceful counterclockwise spins of the handwheel to secure the pipe in front chuck.

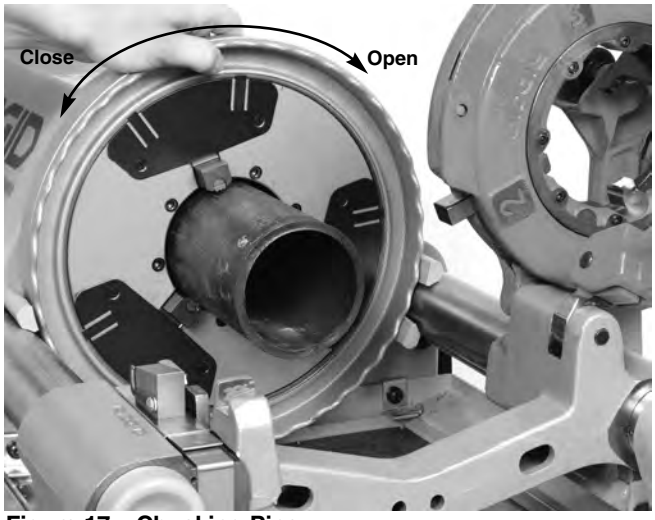


**Figure 17 – Chucking Pipe**

**Figure 18 – Operating Position**

6. Assume a proper operating position to help maintain control of the machine and pipe *(See Figure 18).*
   - Stand on the REV/OFF/FOR switch side of the machine with convenient access to the tools and switch.
   - Be sure that you can control the foot switch. Do not step on foot switch yet. In case of emergency, you must be able to release the foot switch.
   - Be sure that you have good balance and do not have to overreach.

## Changing Operating Speeds

The 1224 has two operating speeds – 12 and 36 rpm. 36 rpm can be used for cutting and reaming pipe up to 4" and threading pipe threads up to 2". 12 rpm should be used to thread 2½" and larger pipe threads or other high torque applications such as stainless steel, high hardness material, etc. If 1224 ever stalls while operating at 36 rpm, immediately release foot switch and change speed to 12 rpm.

Do not change operating speed while cutting, reaming or threading. Any load on machine could prevent shifting of gears. To change operating speed:

1. Move the REV/OFF/FOR switch to the FOR position.
2. Depress and release the foot switch to start the chuck rotating.
3. While the chuck is rotating (but the foot switch is released) move the shift knob.

   These steps match those on the speed selector decal *(Figure 19)*.

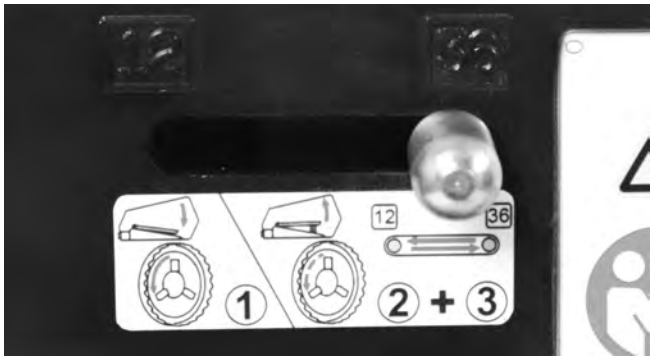


**Figure 19 – Shift Knob/Decal**

## Carriage Handwheel Adjustment

The 1224 carriage handwheel position can be adjusted for better leverage.

1. Pull handwheel out from carriage.
2. Rotate the handwheel ¼ turn. The handle will automatically reengage in new position.

**Figure 20 – Carriage Handwheel Adjustment**

## Cutting with No. 764 Cutter

1. Open cutter by turning the feed screw counterclockwise. Lower the cutter into cutting position over the pipe. Use the carriage handwheel to move the cutter over the area to be cut, and align the cutter wheel with the mark on the pipe. Cutting threaded or damaged sections of pipe can damage the cutter wheel.

2. Tighten the cutter feed screw handle to bring the cutter wheel firmly in contact with the pipe while keeping the cutter wheel aligned with the mark on the pipe.
3. Move the REV/OFF/FOR switch to the FOR position.
4. With both hands, grasp the pipe cutter feed handle *(Figure 21)*.
5. Depress the foot switch.
6. Tighten the feed screw handle one-half turn per rotation of the pipe until the pipe is cut. More aggressive tightening of the handle reduces cutter wheel life and increases pipe burr formation. Do not support the pipe by hand. Let the cut off piece be supported by the threading machine carriage and pipe stand.

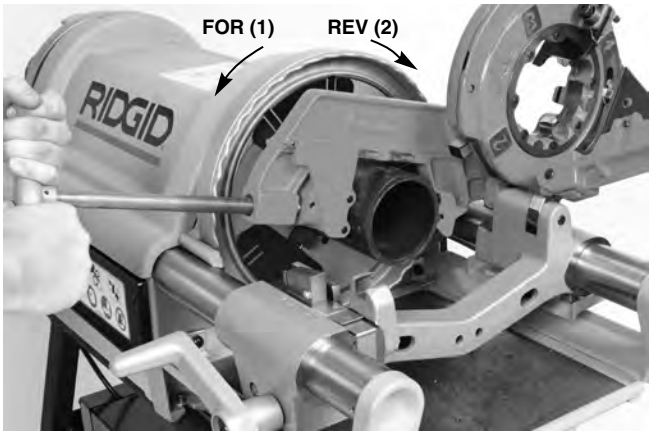


**Figure 21 – Cutting Pipe with 764 Cutter/Machine Rotation**

7. Remove foot from the foot switch.
8. Move the REV/OFF/FOR switch to the OFF position.
9. Raise cutter into position up away from operator.

## Reaming with No. 744 Reamer

1. Move the reamer into reaming position. Make sure that it is securely positioned to prevent it from moving during use.
2. Move the REV/OFF/FOR switch to the FOR position.
3. With both hands, grasp the carriage handwheel.
4. Depress the foot switch.
5. Turn carriage handwheel to move the reamer to the end of the pipe. Apply slight pressure to the handwheel to feed the reamer into pipe to remove the burr as desired.


**Figure 22 – Reaming Pipe with Reamer**

6. Remove foot from the foot switch.
7. Move the REV/OFF/FOR switch to the OFF position.
8. Move the reamer up away from the operator.

## Threading Pipe

Due to differing pipe characteristics, a test thread should always be performed before the first thread of the day or when changing pipe size, schedule or material.

1. Lower the die head into the threading position. Confirm that the dies are correct for the pipe being threaded and properly set. See the *"Die Head Set-Up and Use"* section for information on changing and adjusting dies.
2. Close the die head.
3. Choose the correct operating speed for the application.
4. Move the REV/OFF/FOR switch to the FOR position.
5. With both hands, grasp the carriage handwheel.
6. Depress the foot switch.
7. Confirm cutting oil flow through the die head.
8. Turn carriage handwheel to move the die head to the end of the pipe. Apply slight force to the handwheel to start the die head onto the pipe. Once the die head starts threading the pipe, no more force is required on the carriage handwheel.

   When using the 714/914 die head to make a tapered thread, once the release foot actuates the receding mechanism, if the die head is moved away from the pipe, you will cut an oversized thread.

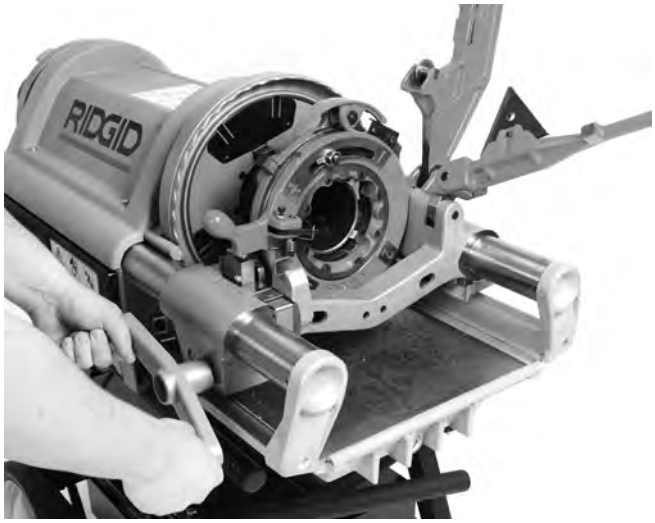


**Figure 23 – Threading Pipe (714 Die Head Shown)**

9. Keep your hands away from the rotating pipe. Make sure the carriage does not hit the machine. When the thread is complete, open the die head (if the die head does not open automatically). Do not run machine in Reverse (REV) with dies engaged.
10. Remove foot from the foot switch.
11. Move the REV/OFF/FOR switch to the OFF position.
12. Turn the carriage handwheel to move the die head past the end of the pipe. Raise the die head into position up away from the operator.
13. Remove the pipe from the machine and inspect the thread. Do not use the machine to tighten or loosen fittings on the thread.

## Threading Bar Stock/Bolt Threading

Bolt threading is similar to the pipe threading process. The stock diameter should never exceed the thread major diameter.

When cutting bolt threads, the correct dies and die head must be used. Bolt threads may be cut as long as needed, but make sure the carriage does not hit the machine. If long threads are required:

1. At the end of carriage travel, leave the die head closed, remove foot from the foot switch and move the REV/OFF/FOR switch in the OFF position.
2. Open the chuck and move the carriage and workpiece to the end of the machine.
3. Re-chuck the rod and continue threading.

## Left Hand Threading

Cutting left hand threads is similar to the right hand threading process. To cut left hand threads, left hand die heads and dies are required. Latch the die head in place *(Figure 24)*. Run machine in Reverse (REV) while threading.

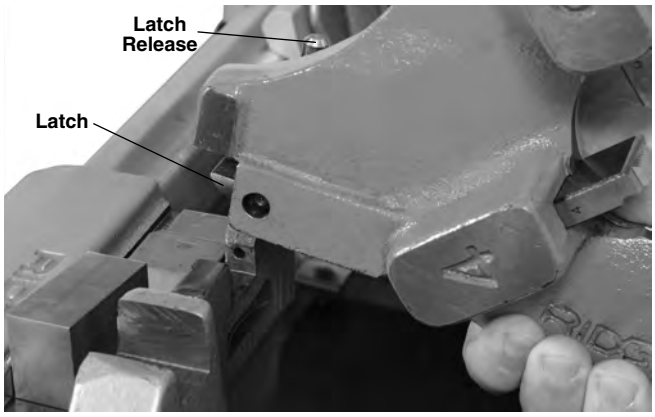


**Figure 24 – Latch on LH Die Head**

## Beveling Pipe

1. Install the beveling dies as per *"Inserting/Changing the Dies"* procedure.

   Bevel cutting die (marked "2") must go into the number 2 die head slot. Guide dies are not marked and are used in the 1, 3 and 4 die head slots. Refer to the respective die head instructions for information on die insertion.
2. For 714 and 914 die heads, set up for NPSM/BSPP straight threads.
3. Follow the Threading Machine instructions for threading pipe.

   Move the die head into threading position and close the die head. Move the carriage to bring the dies in contact with the pipe and apply slight force to form the desired bevel. In some cases, the size may need to be adjusted slightly (OVER or UNDER) so that the guide dies ride on the pipe outside diameter.

## Removing Pipe from the Machine

1. With the REV/OFF/FOR switch in the OFF position and the pipe stationary, use repeated and forceful clockwise spins of the handwheel to loosen the pipe in the chuck. Open the front chuck and the rear-centering device. Do not reach into chuck or centering device.
2. Firmly grip the pipe and remove from the machine. Carefully handle the pipe as the thread may still be hot and there may be burrs or sharp edges.

### Inspecting Threads

1. After removing the pipe from the machine, clean the thread.
2. Visually inspect thread. Threads should be smooth and complete, with good form. If issues such as thread tearing, waviness, thin threads, or pipe out-of-roundness are found, the thread may not seal. Refer to the *Troubleshooting Chart* for help in diagnosing these issues.
3. Inspect the size of the thread.
   - The preferred method of checking thread size is with a ring gauge. There are various styles of ring gauges, and their usage may differ from that shown here.
   - Screw ring gauge onto the thread hand tight.
   - Look at how far the pipe end extends through the ring gage. The end of the pipe should be flush with the side of the gauge plus or minus one turn. If thread does not gauge properly, cut off the thread, adjust the die head and cut another thread. Using a thread that does not gauge properly can cause leaks.

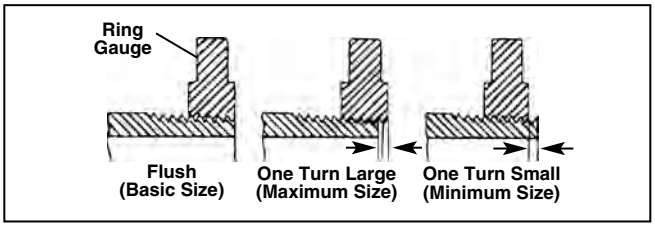


**Figure 25 – Checking Thread Size**

   - If a ring gauge is not available to inspect thread size, it is possible to use a new clean fitting representative of those used on the job to gauge thread size. For 2" and under NPT threads, the threads should be cut to obtain 4 to 5 turns to hand tight engagement with the fitting and for BSPT it should be 3 turns. For 2½" to 4" NPT threads the hand tight engagement should be 5.5 to 7 threads, and for BSPT it should be 4 threads.
4. Adjust the threads according to appropriate section of *"Adjusting Thread Size"* under *"Die Head Set-Up and Use"* heading.
5. Test the system in accordance with local codes and normal practice.

### Preparing Machine for Transport

1. Make sure that the REV/OFF/FOR switch is in the OFF position and the cord is unplugged from the outlet.
2. Clean the chips and other debris from the chip tray. Remove or secure all equipment and material from the machine and stand prior to moving to prevent falling or tipping. Clean up any oil or debris on the floor.
3. Place the cutter, reamer and die head in the operating position.
4. Coil up the power cord and foot switch cord.
5. Use care in lifting and moving, follow stand instructions. Be aware of the machine weight.


**Figure 26 – Machine prepared for Transport**

## Maintenance Instructions

**⚠ WARNING**

**Make sure that the REV/OFF/FOR switch is in the OFF position and the machine is unplugged before performing any maintenance or making any adjustments.**

**Maintain threading machine according to these procedures to reduce the risk of injury from electrical shock, entanglement and other causes.**

### Cleaning

After each use, empty the threading chips from the draw tray assembly and wipe out any oil residue. Wipe oil off exposed surfaces, especially areas of relative motion like the carriage rails.

If the jaw inserts do not grip and need to be cleaned, use a wire brush to remove any build up of pipe scale, etc.

### Top Cover Removal/Installation

The top cover is retained by screws at each corner. The screws are secured to the cover to prevent loss. When removing or installing the cover, loosen or tighten the cover screws in three steps to allow the cover to move and flex. See *Figure 27* for the tightening/loosening se-

quence. Do not operate the threading machine with cover off.

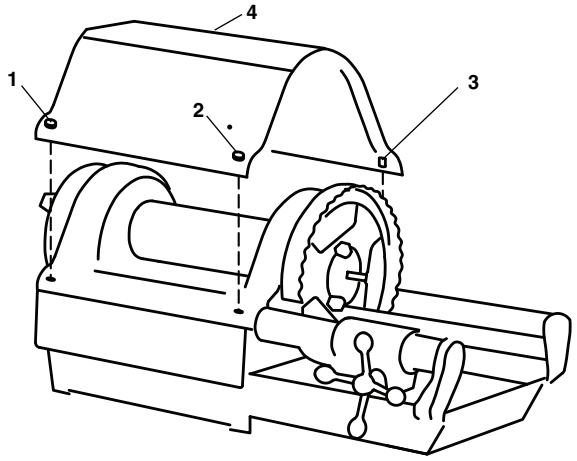


**Figure 27 – Top Cover Screw Tightening/Loosening Sequence**

## Lubrication

On a monthly basis (or more often if needed) lubricate all exposed moving parts (such as carriage rails, cutter wheels, cutter feed screw, jaw inserts and pivot points) with a light lubricating oil. Wipe any excess oil from exposed surfaces.

Every 2-6 months, depending on usage, remove top cover and use grease gun to apply Lithium based EP (Extreme Pressure) grease to the shaft bearing grease fittings *(Figure 28)*.

Do not operate the threading machine with cover off. Always replace cover immediately after lubricating machine.

**Figure 28 – Grease Fittings**

## Oil System Maintenance

To remove the draw tray assembly, push toward the front chuck (1) and lift (2) *(see Figure 29)*.

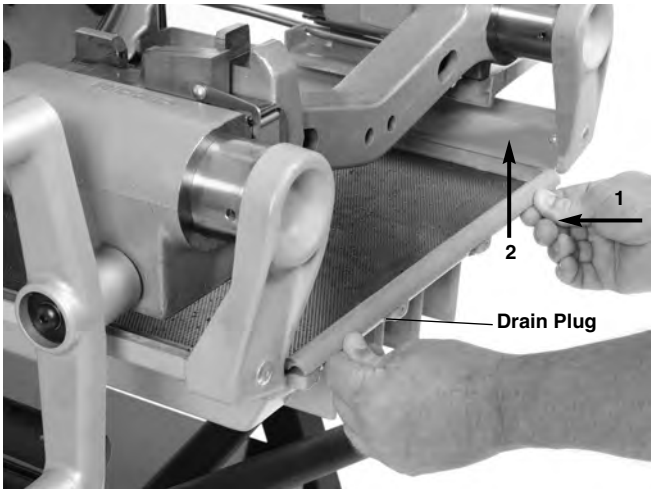


**Figure 29 – Removing the Draw Tray Assembly**

Keep oil filter screen clean for sufficient oil flow. Oil filter screen is located in the bottom of oil reservoir. Loosen the screw that secures filter to base, remove filter from oil line and clean. Do not operate machine with oil filter screen removed.

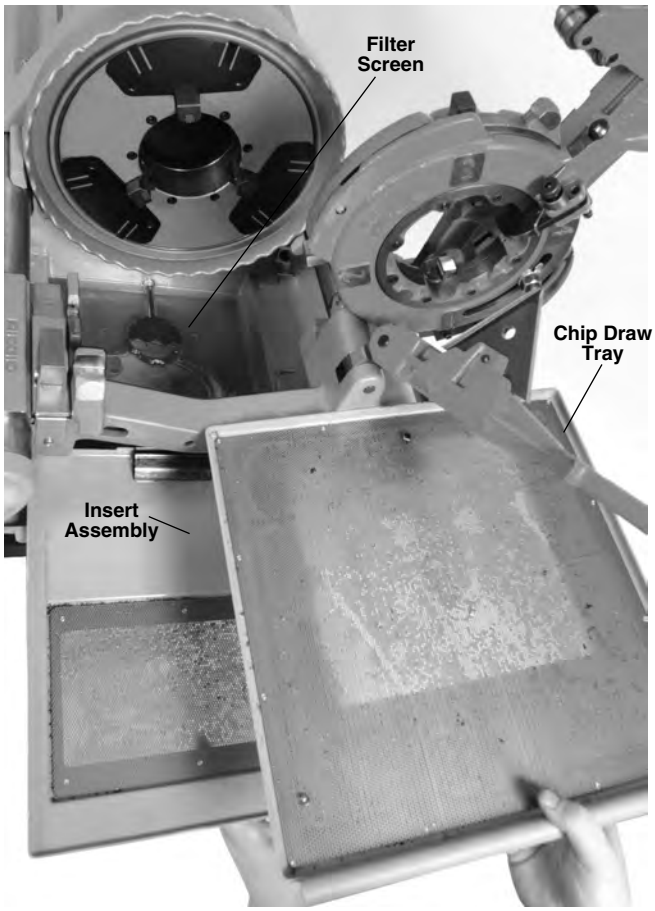


**Figure 30 – Filter Screen Assembly**

Replace thread cutting oil when it becomes dirty or contaminated. To drain the oil, position a container under drain plug at end of reservoir and remove plug. Clean build up from the bottom of the reservoir. Use RIDGID Thread Cutting Oil for high quality threads and maximum die life. Reservoir in the base will hold approximately 5 qt (4,7 l) of thread cutting oil.

The oil pump should self-prime if the system is clean. If it does not, this indicates that the pump is worn and should be serviced. Do not attempt to prime the pump.

## Replacing No. 764 Cutter Wheel

If the cutter wheel becomes dull or broken, push cutter wheel pin out of frame and check for wear. If needed replace pin, and install new Cutter Wheel *(see RIDGID catalog).* Lubricate pin with light lubricating oil.

## Replacing Jaw Inserts

If Jaw inserts are worn out and do not grip pipe, they need to be replaced.

1. Place screwdriver in insert slot and turn 90 degrees in either direction. Remove insert *(Figure 31).*

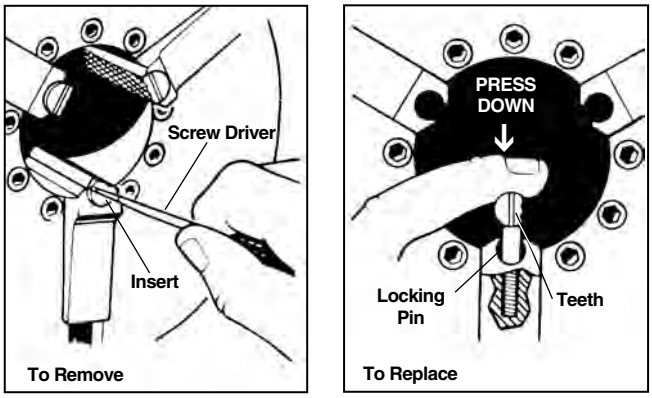


**Figure 31 – Replacing Jaw Inserts**

2. Place insert sideways on locking pin and press down as far as possible *(Figure 31)*.
3. Hold insert down firmly, and with screwdriver, turn so teeth face up.

## V-Belt Tension/Replacement

When lubricating the grease fittings, check v-belt tension. Apply moderate finger force (about 4 pounds (2 kg)) to the midpoint of the belt. Belt should deflect approximately 1/8" (3mm) *(Figure 32)*.

1. Loosen setscrew and 5/16" nut that lock the motor bracket to the rail.
2. Loosen the 1/4" screw that retains the belt tensioner and pull the belt tensioner back.
3. If changing the belt, loosen the four fasteners that hold the motor to the motor bracket and slide the motor towards the pulley. Remove and replace belt. Slide motor away from pulley and secure fasteners that hold motor to bracket.
4. Push the belt tensioner forward until belt is properly tensioned. Tighten 1/4" screw.
5. Secure setscrew and 5/16" nut that lock the motor bracket to the rail.

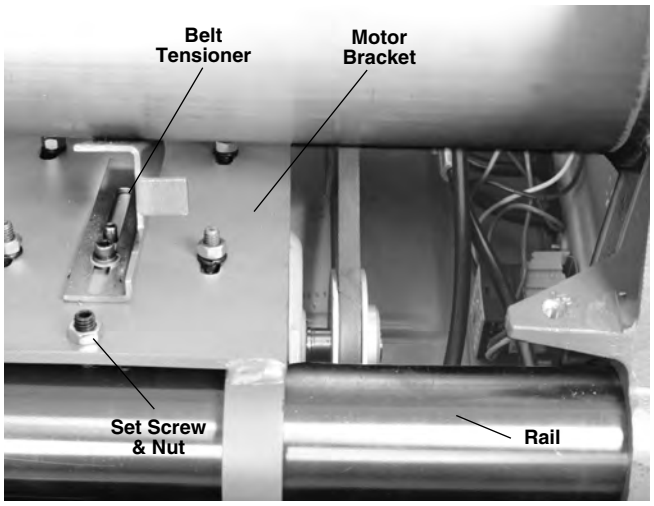


**Figure 32 – Motor Bracket and Belt Tensioner**

## Optional Equipment

**⚠ WARNING**

**To reduce the risk of serious injury, only use equipment specifically designed and recommended for use with the 1224 Threading Machine.**

| Catalog No. | Model No, | Description |
|---|---|---|
| 26212 | 764 | ¼" to 4" Wheel-Type Cutter |
| 26217 | 744 | ¼" to 4" Blade-Type Reamer |
| 34577 | – | ¼" to 4" Reamer Blade |
| 26187 | – | Jaw Insert and Roll Set for PE-Coated Pipe |
| Die Heads | | |
| 26132 | 711 | Universal Self-Opening R.H., NPT |
| 26142 | 713 | Universal Quick-Opening L.H., NPT |
| 26152 | 714 | Receding Self-Opening R.H., NPT |
| 26137 | 911 | Universal Self-Opening R.H., BSPT |
| 26147 | 913 | Universal Quick-Opening L.H., BSPT |
| 26157 | 914 | Receding Self-Opening R.H., BSPT |
| 26162 | 541 | Quick-Opening Bolt L.H./R.H. (¼" to 1" sizes) |
| 26167 | 542 | Quick-Opening Bolt L.H./R.H. (1⅛" to 2 " sizes) |
| 55447 | 725 | Cut-Grooving Die Head |
| 57497 | – | 2½" to 3½" Grooving Die Set |
| 57507 | – | 2½" to 3 ½" Grooving Bit only |
| 57492 | – | 4" Grooving Die Set |
| 57502 | – | 4" Grooving Bit only |
| 55452 | 766 | Blade Type Cutter |
| 58712 | – | Cut-Off Tool Bit (for 766) |
| Stands | | |
| 92457 | 100A | Universal Leg & Tray Stand |
| 92462 | 150A | Universal Wheel & Tray Stand |
| 92467 | 200A | Universal Wheel & Cabinet Stand |
| 22563 | – | Steel Cabinet |
| Nipple Chucks | | |
| 51005 | 819 | Nipple Chuck ½" to 2" NPT |
| 68160 | 819 | Nipple Chuck ½" to 2" BSPT |
| 34157 | 419 | Nipple Chuck 2½" NPT |
| 34162 | 419 | Nipple Chuck 3" NPT |
| 34167 | 419 | Nipple Chuck 4" NPT |
| 34172 | 419 | Nipple Chuck 2½" BSPT |
| 34177 | 419 | Nipple Chuck 3" BSPT |
| 34182 | 419 | Nipple Chuck 4" BSPT |

**For a complete listing of RIDGID equipment available for the 1224 Threading Machine, see the Ridge Tool Catalog online at RIDGID.com or call Ridge Tool Technical Service Department (800) 519-3456, from the U.S. and Canada.**

## Thread Cutting Oil Information

Read and follow all instructions on the threading oil label and Safety Data Sheet (SDS). Specific information about RIDGID Thread Cutting Oils, including Hazard Identification, First Aid, Fire Fighting, Accidental Release Measures, Handling and Storage, Personal Protective Equipment, Disposal and Transportation, is included on the container and SDS.

## Machine Storage

**⚠ WARNING** The Threading Machine must be kept indoors or well covered in rainy weather. Store the machine in a locked area that is out of reach of children and people unfamiliar with threading machines. This machine can cause serious injury in the hands of untrained users.

## Service And Repair

**⚠ WARNING**

**Improper service or repair can make machine unsafe to operate.**

The *Maintenance Instructions* will take care of most of the service needs of this machine. Any problems not addressed by this section should only be handled by an authorized RIDGID service technician.

Tool should be taken to a RIDGID Independent Service Center or returned to the factory. Only use RIDGID service parts.air questions:

## Disposal

Parts of the Threading Machine contain valuable materials and can be recycled. There are companies that specialize in recycling that may be found locally. Dispose of the components and any waste oil in compliance with all applicable regulations. Contact your local waste management authority for more information.

**For EC Countries:** Do not dispose of electrical equipment with household waste!

According to the European Guideline 2012/-19/EU for Waste Electrical and Electronic Equipment and its implementation into national legislation, electrical equipment that is no longer usable must be collected separately and disposed of in an environmentally correct manner.

## Troubleshooting

| PROBLEM | POSSIBLE REASONS | SOLUTION |
|---|---|---|
| **Torn threads.** | Damaged, chipped or worn out dies. | Replace dies. |
| | Incorrect cutting oil. | Only use RIDGID® Thread Cutting Oil. |
| | Insufficient cutting oil. | Fill oil reservoir. |
| | Dirty or contaminated oil. | Replace the RIDGID® Thread Cutting Oil. |
| | Die head not properly aligned with pipe. | Clean chips, dirt or other foreign material from between die head and carriage. |
| | Improper pipe. | Recommend using with black or galvanized steel pipe. |
| | | Pipe wall too thin – use schedule 40 or heavier pipe. |
| | Die head not properly set. | Adjust die head to give proper size thread. |
| | Carriage not moving freely on rails. | Clean and lubricate carriage rails. |
| **Out-of-round or crushed threads.** | Die head set undersize. | Adjust die head to give proper size thread. |
| | Pipe wall thickness too thin. | Use schedule 40 or heavier pipe. |
| **Thin threads.** | Dies inserted into head in wrong order. | Put dies in proper position in die head. |
| | Forcing carriage feed handle during threading. | Once dies have started thread, do not force carriage feed handle. Allow carriage to self-feed. |
| | Die head cover plate screws are loose. | Tighten screws. |
| **No cutting oil flow.** | Low or no cutting oil. | Fill oil reservoir. |
| | Oil Screen Plugged. | Clean Screen. |
| | Die head not in the threading (DOWN) position. | Move die head to the threading position. |
| **Motor running but machine will not work.** | V-belt loose. | Tighten the v-belt. |
| | Worn out v-belt. | Replace the v-belt. |
| **Pipe slips in jaws.** | Jaw inserts loaded with debris. | Clean jaw inserts with wire brush. |
| | Jaws inserts worn out. | Replace jaw inserts. |
| | Pipe not properly centered in jaw inserts. | Make sure pipe is centered in jaw inserts, use the rear centering device. |
| | Chuck not tight on pipe. | Use repeated and forceful spins of the hammer wheel to tighten speed chuck. |

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