



# 700/705/710 Vehicle Mounted Brake Lathe & Rotor Driving Unit



## Installation Instructions Operating Instructions Safety Instructions Maintenance Instructions

READ these instructions before placing unit in service. KEEP these and other materials delivered with the unit in a binder near the machine for ease of reference by supervisors and operators.

**HENNESSY INDUSTRIES, INC.**

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HENNESSY INDUSTRIES INC. Manufacturer of AMMCO®, COATS® and BADA® Automotive Service Equipment and Tools.

Manual Part No.: 927588 16

Revision: 06/01

# Brake Lathes

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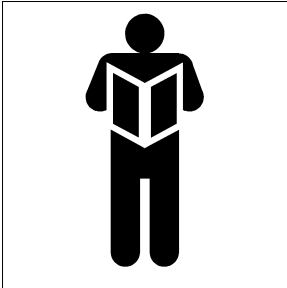
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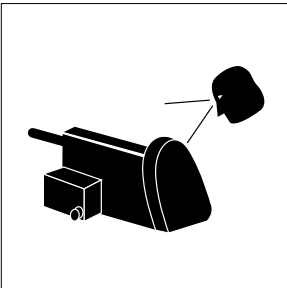
# Safety

## Safety Notices and Decals

For your safety, and the safety of others, read and understand all of the safety notices and decals included here and on the unit.



**Read entire manual before installing, operating, or servicing this equipment.**



**Proper maintenance and inspection is necessary for safe operation.**



**Do not operate a damaged lathe.**

## Warning

This equipment incorporates parts such as snap switches and power receptacles which tend to produce arcs or sparks. Therefore, when located in a service facility, the unit should be in a room or enclosure provided for the purpose, or should be at least 18" or more above floor to minimize the risk of igniting fuel vapors.

## Cautions and Dangers

1. Eye and face protection requirements:

"Protective eye and face equipment is required to be used where there is a reasonable probability of injury that can be prevented by use of such equipment." OSHA 1910.133 (a).

Protective goggles, safety glasses, or a face shield must be provided by the purchaser/user and worn by the operator of the equipment. Make sure all eye and face safety precautions are followed by the operator(s). Keep bystanders out of the area.

2. Do not remove any safety equipment, belt guards, or shortcut controls or operations.
3. Make sure drums and rotors are properly and squarely mounted before starting lathe, and that all parts are secure.
4. Do not wear loose clothing, jewelry, or gloves when operating or working around a lathe.
5. Do not overload the lathe. Read and understand the lathe specifications. Overloading is poor machine tool practice, shortens the life of the lathe, and could cause a failure resulting in personal injury.



**Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property. Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual. For additional copies of either, or further information, contact:**

### **Hennessy Industries, Inc.**

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# Safety

## Owner's Responsibility

To maintain machine and user safety, the responsibility of the owner is to read and follow these instructions:

- Follow all installation instructions.
- Make sure installation conforms to all applicable Local, State, and Federal Codes, Rules, and Regulations; such as State and Federal OSHA Regulations and Electrical Codes.
- Carefully check the unit for correct initial function.
- Read and follow the safety instructions. Keep them readily available for machine operators.
- Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.
- Allow unit operation only with all parts in place and operating safely.
- Carefully inspect the unit on a regular basis and perform all maintenance as required.
- Service and maintain the unit only with authorized or approved replacement parts.
- Keep all instructions permanently with the unit and all decals/labels/notices on the unit clean and visible.
- Do not override safety features.

## Definitions of Hazard Levels

Identify the hazard levels used in this manual with the following definitions and signal words:

### DANGER

Watch for this symbol:



It Means: Immediate hazards, which will result in severe personal injury or death.

### WARNING

Watch for this symbol:



It Means: Hazards or unsafe practices, which could result in severe personal injury or death.

### CAUTION

Watch for this symbol:



It Means: Hazards or unsafe practices, which may result in minor personal injury or product or property damage.



Watch for this symbol! It means BE ALERT! Your safety, or the safety of others, is involved!

<b>⚠ CAUTION ⚠</b> Prevent accidents and injury, read and follow instructions.		
<ol style="list-style-type: none"><li>1. Read and follow instructions.</li><li>2. Always wear eye protection, avoid loose clothing and jewelry.</li><li>3. Keep all guards, shields, and covers in place and in working order.</li><li>4. Keep bystanders out of work area.</li><li>5. Unplug unit from power source before servicing or adjusting.</li><li>6. Maintain unit properly, keep work surfaces and work area clean.</li></ol>		

# IMPORTANT SAFETY INSTRUCTIONS

Before operating the lathe, review the warning information on the lathe and the cautions, warnings and dangers in this manual. Also review the following general safety instructions. Failure to follow safety instructions could result in personal injury to operator or bystanders and damage to the lathe or personal property.

## READ ALL INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

- 1.** Keep guards in place and in working order.
- 2.** Remove adjusting keys and wrenches from the tool before turning it on. Make this a habit.
- 3.** Keep work area clean and well lighted. Cluttered areas and benches invite accidents.
- 4.** To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
- 5.** Adequate ventilation should be provided when working on operating internal combustion engines.
- 6.** Care must be taken as burns can occur from touching hot parts.
- 7.** Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged—until it has been examined by a qualified serviceman.
- 8.** If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
- 9.** To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
- 10.** Keep children away. All bystanders should be kept completely away from the work area.
- 11.** Make the workshop kid-proof. Use padlocks and master switches, and remove starter keys.
- 12.** Don't force a tool. It will do the job better and safer at the rate for which it was designed.
- 13.** Use the right tool. Don't force a tool or an attachment to do a job for which it was not designed.
- 14.** Dress properly. Keep hair, loose clothing, neckties, shop rags, jewelry, fingers, and all parts of body away from moving parts. Non-slip footwear is recommended.
- 15.** ALWAYS WEAR SAFETY GLASSES. Everyday eye-glasses only have impact resistant lenses, they are NOT safety glasses. Safety glasses, goggles, or a face shield will help protect the operator from injury. Use a face shield and dust mask during dusty operations.
- 16.** Secure the work properly to the unit for setup and tool bit positioning. Do not attempt to hold a drum or rotor steady on the arbor with your hands. Both hands must be free to operate unit.
- 17.** Don't overreach. Keep proper footing and balance at all times when lathe is in operation or when working around the unit.
- 18.** Maintain tools with care. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 19.** Remove power from the unit and disconnect tools before servicing and when changing accessories such as blades, bits, cutters, etc. Follow lock-out and tag-out procedures as required.
- 20.** Avoid unintentional starting. Make sure the switch is in the OFF (O) position before plugging the machine in or performing any maintenance or service work.
- 21.** Use of improper accessories may cause risk of injury to operator or bystanders. Use only as described in this manual. Use only manufacturer's recommended attachments.
- 22.** Never stand or lean on a lathe. Serious injury could occur if the lathe is tipped or if the cutting tool is unintentionally contacted.
- 23.** Check damaged parts carefully. Before further use of the lathe, a guard or other part that is damaged should be carefully checked. Immediately replace all damaged, missing, or non-functional parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect operation. Guards and other parts that are damaged should be properly repaired or replaced before lathe is used again.
- 24.** Always feed the work into a blade or cutter and against the direction of rotation. Cutters and tool bits are designed to cut from the inside of a drum or rotor to the outer edge. Do not attempt to cut from the outside edge in to the center.
- 25.** Never leave tools running unattended. Turn the power off. Don't leave the tool until it comes to a complete stop.
- 26.** Never use compressed air to blow the tool clean. Chips and dust may be driven between machined parts and into bearings, causing undue wear. They may also contact persons in the area causing personal injury.
- 27.** Operate the lathe in the proper environment. The lathe incorporates parts such as snap switches and power receptacles which tend to produce arcs or sparks. Therefore, when located in a garage, the unit should be in a room or enclosure provided for the purpose, or should be at least 18" or more above the floor to minimize the risk of igniting fuel vapors.

**SAVE THESE INSTRUCTIONS**

# Brake Lathes

## **Before You Begin**

### **Receiving**

The shipment should be thoroughly inspected as soon as it is received. The signed bill of lading is acknowledgement by the carrier of receipt in good condition of shipment covered by our invoice.

If any of the goods called for on this bill of lading are shorted or damaged, do not accept them until the carrier makes a notation on the freight bill of the shorted or damaged goods. Do this for your own protection.

NOTIFY THE CARRIER AT ONCE if any hidden loss or damage is discovered after receipt and request the carrier to make an inspection. If the carrier will not do so, prepare a signed statement to the effect that you have notified the carrier (on a specific date) and that the carrier has failed to comply with your request.

IT IS DIFFICULT TO COLLECT FOR LOSS OR DAMAGE AFTER YOU HAVE GIVEN THE CARRIER A CLEAR RECEIPT.

File your claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice, and photographs, if available.

Although AMMCO's responsibility ceases upon delivery of the shipment to the carrier, we will gladly assist in tracing lost shipments. Our willingness to assist in every possible manner does not make AMMCO responsible for collection of claims or replacement of lost or damaged materials. Shipping damage claims will not be handled under warranty.

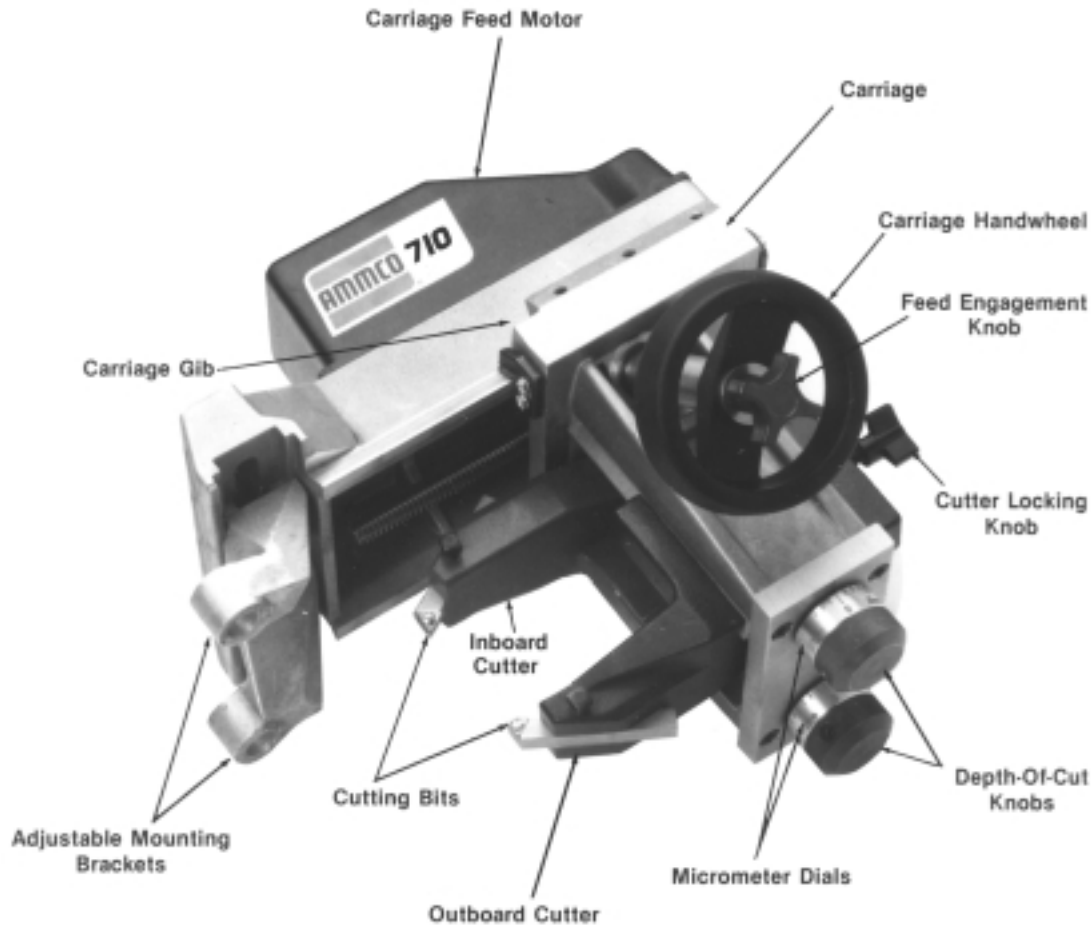
# Brake Lathes

## Components

### Know Your Unit

Compare this illustration with the unit before placing it into service. Maximum performance and safety will be obtained only when all persons using the unit are fully trained in its parts and operation. Each user should learn the function and location of all controls. Prevent accidents and injuries by ensuring the unit is properly installed, operated, and maintained.

### Model 700 Vehicle Mounted Brake Lathe



### Model 710 Specifications

Overall Lathe Height	.9-3/8 in. (238 mm)
Overall Lathe Depth	12-11/16 in. (322 mm)
Overall Lathe Width	11-13/16 in. (300 mm)
Feed Rate (With Rotor Driving Unit Only/180 RPM)	.0023 in. per rev. (.058 mm/rev.)
Micrometer Graduations	.002 in. (.0508 mm/rev.)
Max. Distance Between Adjustable Mounting Brackets	.8-1/32 in. (204)
Min. Distance Between Adjustable Mounting Brackets	.1-1/16 in. (27 mm)
Lathe Weight (Lathe Only)	18 lbs. (8.17 kg)
Floor Space	15-3/4 in. wide X 10-1/2 in. deep
(When Stored in Case)	(400 mm X 267 mm)



# Brake Lathes

## Brake Lathe Operation

To completely understand rotor turning with this lathe, you must have a knowledge of the lathe itself. When the lathe is plugged into a power source the carriage feed motor is on. When the feed engagement knob is loose, the carriage will move through its full travel with a few turns of the handwheel. When the feed engagement knob is tightened, the carriage will travel in an outward direction until the knob is loosened, or the carriage reaches the end of travel. The limit switch will turn the feed motor off when maximum travel is reached.

**Note:** The carriage handwheel cannot be hand adjusted while the engagement knob is tight.

Both faces of the rotor will be reconditioned at the same time, the depth-of-cut on each side is determined by each side's dial micrometer. The lathe assembly has a pair of self-centering mounting brackets. These can be adjusted to fit the bolt pattern of the caliper mounting bracket on the majority of today's vehicles. This insures that the cutting bits will be in the proper location for reconditioning of the rotor.

The mounting hardware containing various bolts, spacers, washers, and nut plates, will allow for the mounting of the lathe to most vehicles without the need to purchase extra hardware.

## Reconditioning Disc Brake Rotors

Each brake rotor should be carefully inspected for SCORING and RUST RIDGES (at the inner and outer circumference of the rotor). Any excessive wear or deformity should be noted and, if not within acceptable limits, the rotor should be replaced.

Use a micrometer to check the thickness of the rotor at no less than three points around the circumference about 1" (2.54 cm) in from the outer diameter. If the thickness is less than the minimum established by the car manufacturer (or if it will be less after reconditioning), the rotor should be replaced.

**Note:** Most often the discard thickness dimension is cast into the rotor, not the minimum "machine to" thickness.

## Depth-Of-Cut Micrometer Dials

The depth-of-cut micrometer dials are calibrated with both inch and metric scales. The depth-of-cut dial indicates the amount of material to be cut from its side of the rotor.

**Inch Scale** - A cut of .002" (one micrometer division) on each dial from a 1" thick rotor will result in a refinished rotor of .996" thick.

**Metric Scale** - A cut of .05 mm (one micrometer division) on each dial from a 25.4 mm thick rotor will result in a refinished rotor of 25.3 mm thick.

## Vehicle Preparation

**1.** Remove the caliper to provide a secure place of attachment for the lathe. The caliper should be supported with a wire hook to prevent strain on the flexible brake hose. Position the hook as to place the caliper in an out-of-the-way position to avoid damage.

**Note:** If the rotor to be machined is connected, by the drive train, to the wheel on the opposite side of the vehicle, both wheels must be removed.

**2.** If the constant-velocity-joint boot is missing or damaged, replace before machining rotor.

**3.** Secure the rotor to the hub using the Rotor Driving Unit lug adapter as described in the section MOUNTING OF LUG ADAPTER.

**4.** If required, rotate the steering wheel to allow clearance for the lathe between the steering knuckle and fender well, Fig. 1.

**Note:** On some rear rotor applications the shock, sway bar, and connecting arms may need to be disconnected in order to gain more room by allowing the axle to drop down.

# Brake Lathes

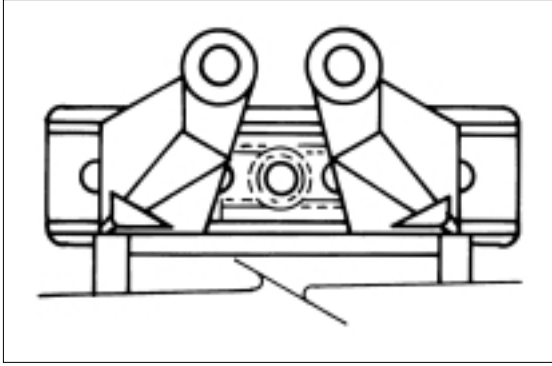


Figure 2

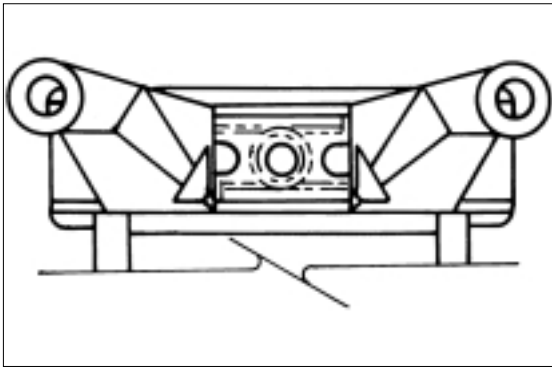


Figure 3

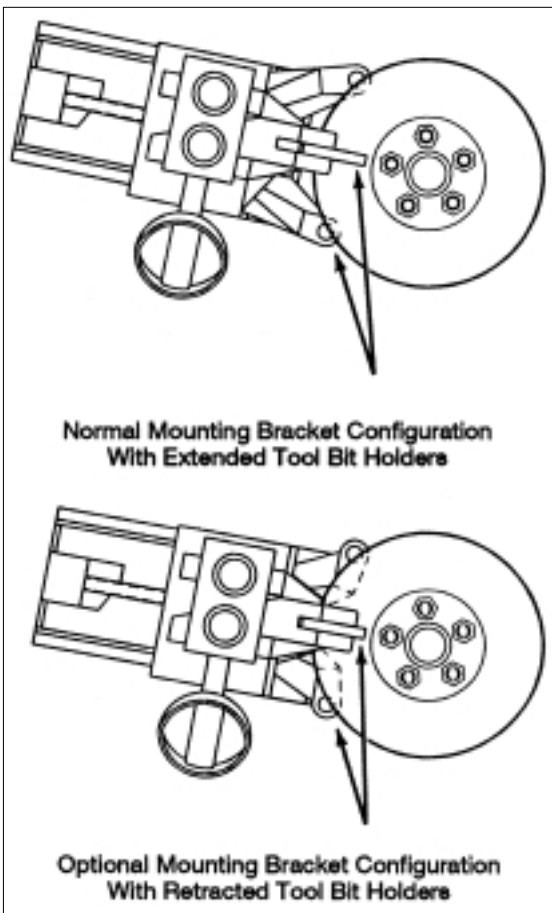


Figure 4

## Lathe Mounting Procedures

The lathe was designed to be mounted to the caliper mounting bracket on the vehicle.

**1.** Loosen the bolts holding the adjustable mounting brackets on the lathe and slide the brackets in or out to align with the holes in the caliper mounting bracket on the vehicle.

This may be accomplished by removing the bolts holding them to the lathe and repositioning them, being certain that they are squarely seated in the track, and are mated with the pins in the gear rack.

Some applications require the tool bit holders to be extended in order to refinish the entire braking surface. This could induce vibration during the cut. The use of the configuration shown in Fig. 3 will prevent the vibration by eliminating the need to extend the cutting bits, Fig. 4.

**Note:** When repositioning the mounting brackets, care should be taken not to allow the gearing mechanisms to disengage. If the gearing becomes disengaged, it needs to be recentered by sliding both racks toward the pinion gear. Engage the end tooth of each rack with the pinion at the same time. Locate the pins midway between the end of the track and the pinion to allow room for re-attaching the mounting brackets.

**2.** Turn the depth-of-cut knob counterclockwise until the inboard (red) cutter rests against the carriage. Turn the carriage handwheel clockwise until the carriage reaches the end of its travel.

Position the lathe against the inboard side of the caliper mounting bracket and check to see if both cutting bits will clear the rotor, Fig. 5.

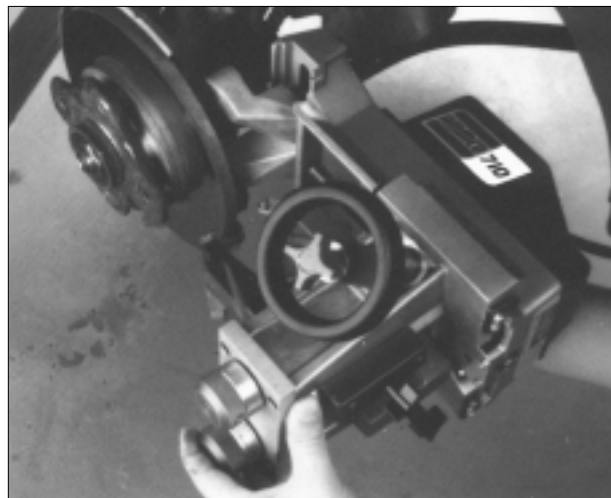


Figure 5

If the outboard (blue) cutter does not appear to clear the rotor, adjust the outboard depth-of-cut knob until clearance is gained. If the inboard (red) cutter does not appear to clear the rotor, pay special attention to step 4 in the following section.

**3.** Attach the lathe to vehicle according to the guidelines in the following three sections.

# Brake Lathes

## Use of Mounting Hardware

**1.** The lathe mounting hardware was designed for use on vehicles with a pressed hub/knuckle/rotor assembly or where removal of the rotor is difficult or inefficient.

**2.** The vehicle's caliper bolts can be used to mount the lathe if the holes in the steering knuckle or caliper mounting bracket are threaded and on the inboard side of the rotor, Fig. 6. Also, the vehicle's caliper bolts should be 1-1/2" in length or longer. Otherwise, the mounting bolts and nut plates provided in the hardware package will be needed.

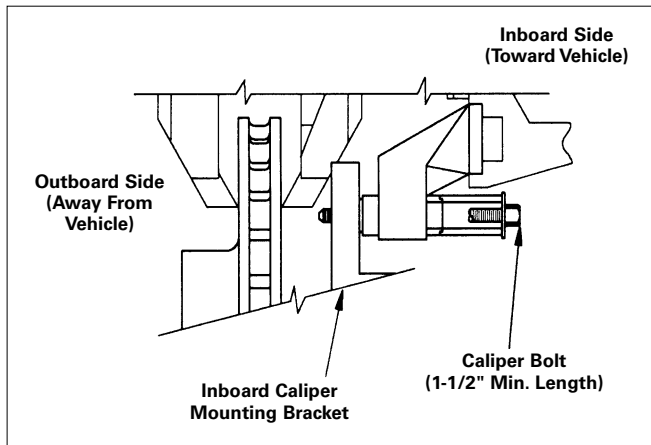


Figure 6

**3.** Whether you are mounting the lathe with the vehicle caliper bolts or with the mounting bolts provided in the hardware kit, various combinations of spacers may be required to take up the space between the bolt heads and the lathe mounting bracket to keep the bolt from interfering with the rotor.

**Note:** When using more than one spacer, care should be taken to use the tongue and groove configuration to prevent misalignment, Fig. 7. If the small 1/8" spacer is required, it should be placed on the caliper bolt last since it does not have the counter-bore the other spacers possess.

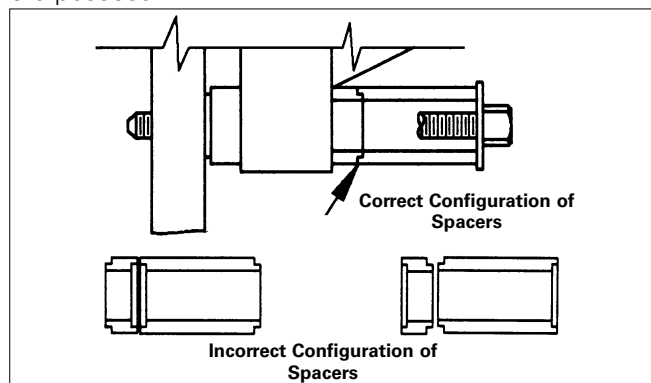


Figure 7

**4.** The spacers may also be used to achieve the proper lathe position on the rotor, by placing the spacers on the caliper/mounting bolts between the lathe mounting bracket and the caliper mounting bracket, Fig. 8.

**5.** The flat washers, provided in the hardware kit, should be used between the caliper bolt head and the spacers to insure a good seat for the bolt head, Fig. 8.

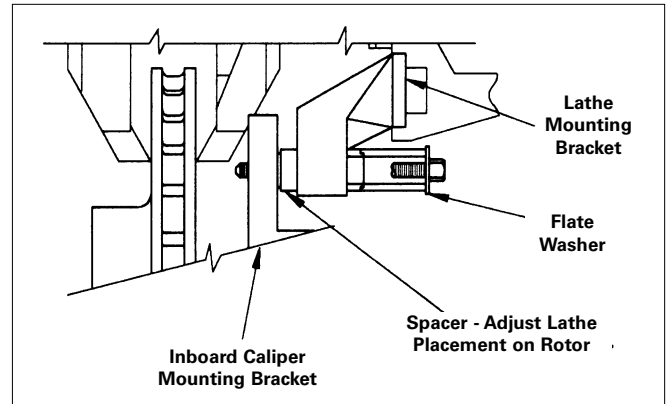


Figure 8

# Brake Lathes

## Installation with the Vehicle's Caliper Bolts

**Note:** Use Figure 9, to assist during installation of the brake lathe using the vehicle's caliper bolts.

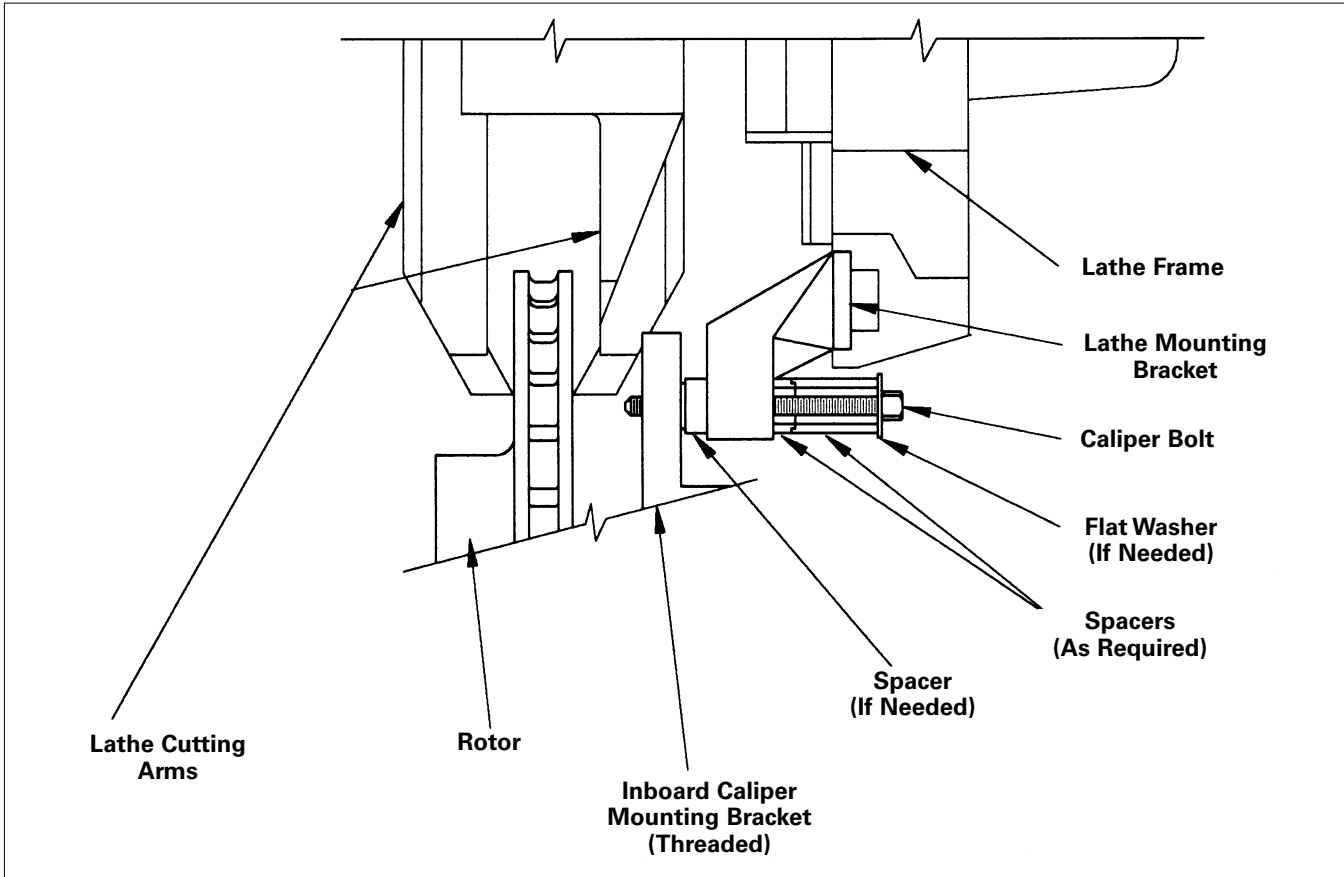


Figure 9

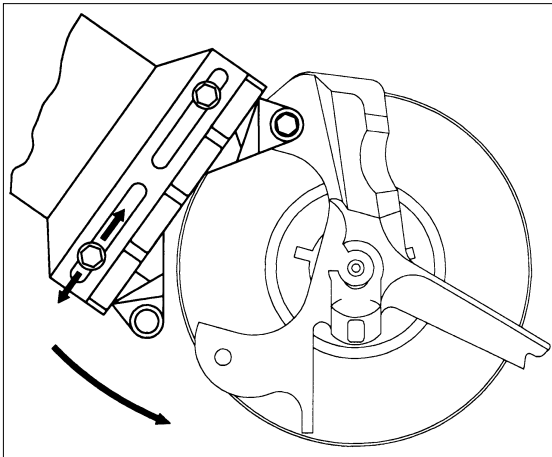


Figure 10

- 1.** Place a washer on the caliper bolt.
- 2.** Place spacer(s), as required, onto the caliper bolt.
- 3.** Insert the caliper bolt with spacers and washer into the upper lathe mounting bracket.
- 4.** Place a spacer, if required, on the caliper bolt between the lathe mounting bracket and caliper bracket to adjust the placement of the lathe on the rotor.
- 5.** Lift the lathe and align the caliper bolt with the upper hole in the caliper mounting bracket. Insert the caliper bolt into the upper mounting bracket.
- 6.** Finger tighten the caliper bolt into the caliper mounting bracket. Let the lathe hang down.
- 7.** Make sure the caliper bolt does not interfere with the rotor. If necessary, remove the caliper bolt and add spacers.
- 8.** Adjust the lathe mounting brackets until the lower lathe mounting bracket aligns with the lower hole in the caliper mounting bracket, Fig. 10.
- 9.** Repeat steps 1 thru 7 to install the lower caliper bolt.
- 10.** Torque the caliper bolts to 15 foot pounds.

# Brake Lathes

## Installation With Mounting Bolts Supplied in Mounting Hardware

**Note:** Use Figure 11 to assist during installation of the brake lathe when using the mounting bolts supplied with the mounting hardware.

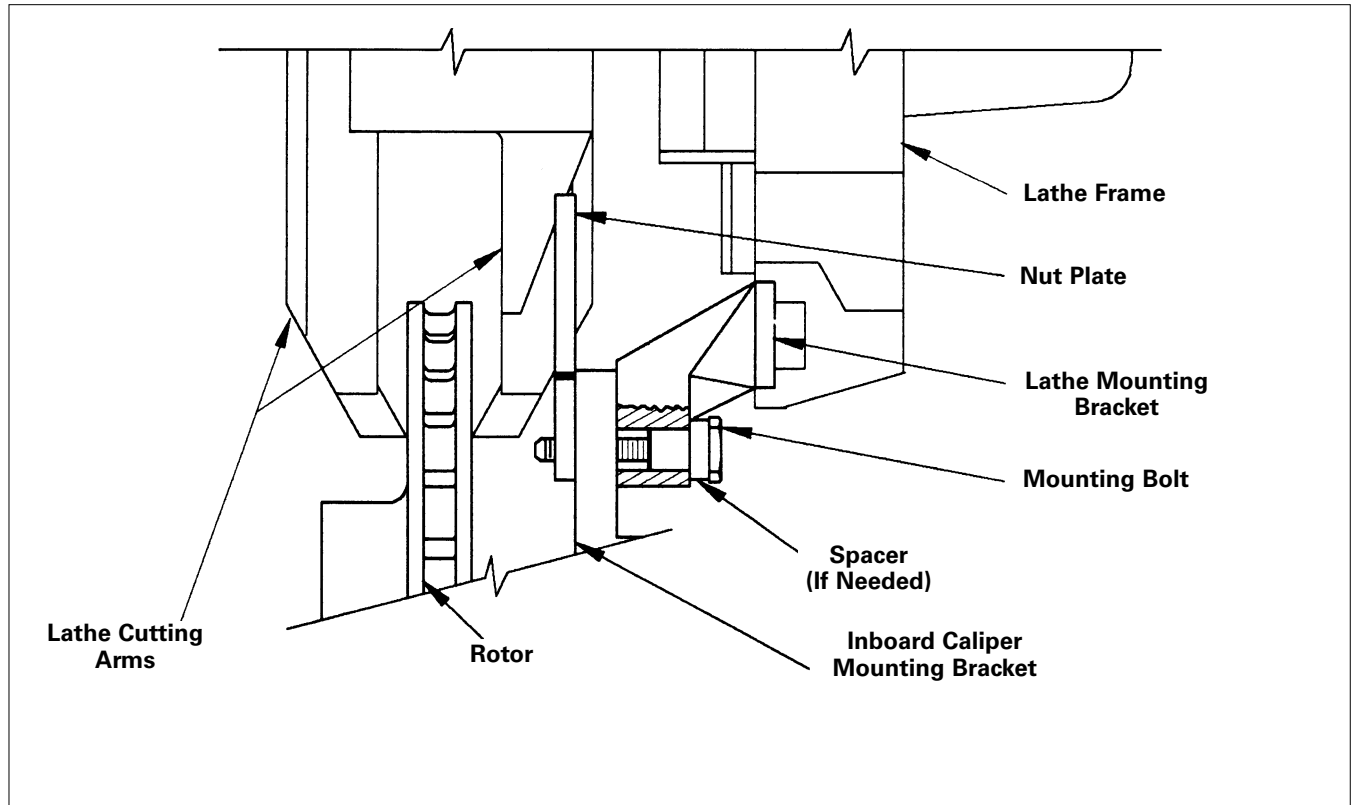


Figure 11

- 1.** Place spacer(s), as required, onto the mounting bolt.
- 2.** Insert the mounting bolt with spacers into the upper lathe mounting bracket.
- 3.** Lift the lathe and align the upper mounting bolt with the upper caliper bracket bolt hole. Insert the bolt through the caliper bracket.
- 4.** Place a nut plate between the upper caliper bracket and the rotor. Finger tighten the mounting bolt into the nut plate. Let the lathe hang down.
- 5.** Make sure the mounting bolt does not interfere with the rotor. If necessary, remove the bolt and add spacers.
- 6.** Adjust the lathe mounting brackets, Fig. 10 on the previous page, until the lower lathe mounting bracket aligns with the lower caliper bracket bolt hole.
- 7.** Repeat steps 1 thru 5 to install the lower mounting bolt.
- 8.** Torque the mounting bolts to 15 foot pounds.

# Brake Lathes



Figure 12

## Set-Up and Machining

**1.** Properly mount the lathe to the vehicle, as described in the Section LATHE MOUNTING PROCEDURES.

**2.** Properly secure the rotor to the hub, as described in the section MOUNTING OF LUG ADAPTER.

**3.** Install a silencer band on the outside diameter of the rotor to dampen vibrations during cutting.

**4.** Prepare and install the Rotor Driving Unit.

**Note:** It is not necessary to secure the opposite rotor for consistent speed.

**5.** Check to insure that the cutting bits are clear of the rotor, Fig. 12. Plug the Lathe into the switched outlet on the Rotor Driving Unit, and turn on the Rotor Driving unit.

Note the position of the cutting bits relative to the rotation of the rotor. The direction of rotation must be into the top face of the cutting bits, Fig. 13. Correct the cutting bit direction if necessary.

**6.** Double check the positions of the cutting bits relative to the rotor. Each should clear the rotor to allow travel to the inner diameter of the braking surface, Fig. 14.

**7.** Make sure the engagement knob is loose.

**8.** Check to insure there is enough travel in the carriage to allow the cutting bits to reach the inner diameter of the braking surface. Turn the handwheel counterclockwise to move the carriage toward the rotor.

**Note:** Do Not jam cutting bits into the hat or raised portion of the rotor.

**9.** Position the cutting bits about 1/2" in from the outer edge of the braking surface, Fig. 15.

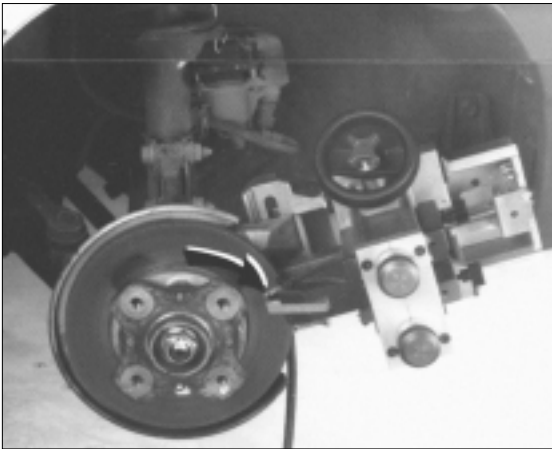


Figure 13

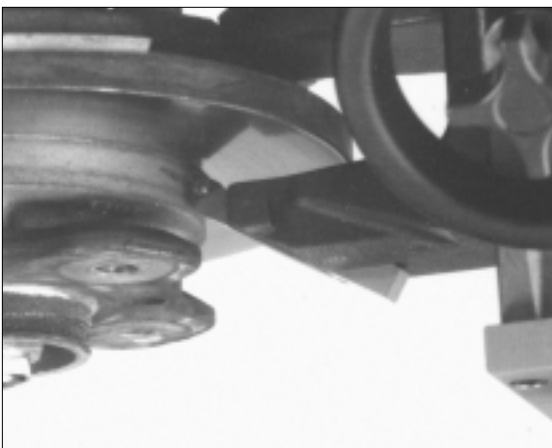


Figure 14

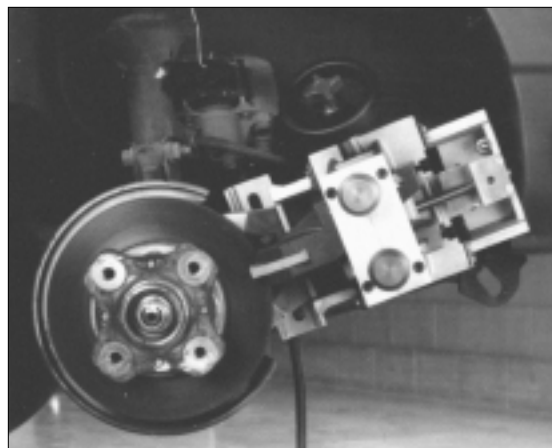


Figure 15

# Brake Lathes

**10.** Turn the (blue) depth-of-cut knob clockwise to advance the outboard cutter until it lightly contacts the brake surface. Holding the knob still, rotate the micrometer dial to zero, Fig. 16.

**11.** Turn the (red) depth-of-cut knob clockwise to advance the inboard cutter until it lightly contacts the brake surface. Holding the knob still, rotate the micrometer dial to zero.

**Note:** Once you have zeroed a dial, never use the dial micrometer to advance or withdraw a cutting bit; the dial may slip, losing the zero position. Use the depth-of-cut knob to advance or withdraw the cutting bit.

**12.** Advance the carriage with the handwheel until the outboard cutting bit reaches the inside edge of the braking surface of the rotor.

**13.** Turn the depth-of-cut knobs individually to set each cutting bit to the desired depth-of-cut (usually .006" per side or three divisions of the micrometer), Fig. 17.

**Note:** A .006" depth-of-cut per side (a total of .012") will recondition most rotors, although some severely grooved rotors may require more than one cut.

Cuts may be .002" – .010" deep.

**14.** Tighten the cutter locking knobs, Fig. 18.

**15.** Tighten the engagement knob in the center of the handwheel, Fig. 19. This will start the cut. When the cutting bits have cleared the outer edge of the rotor, loosen the engagement knob to stop the carriage.

**16.** Turn off the Rotor Driving Unit and inspect both surfaces of the rotor.

**17.** If part of the brake surface was not cut, leave the cutters locked in position. Turn on the Rotor Driving Unit. Slowly turn the handwheel to move the carriage to the inside edge of the braking surface.

**18.** Repeat steps 13, 14, 15, and 16.

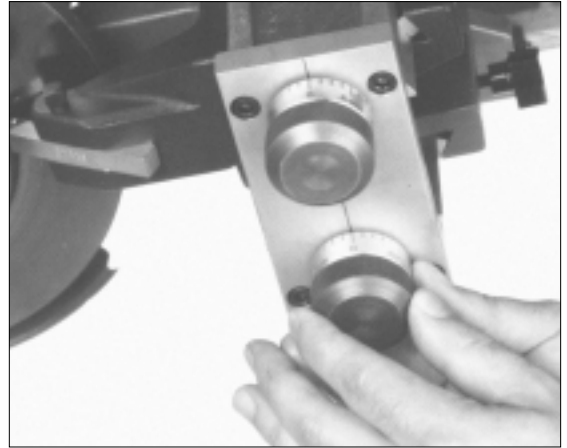


Figure 16

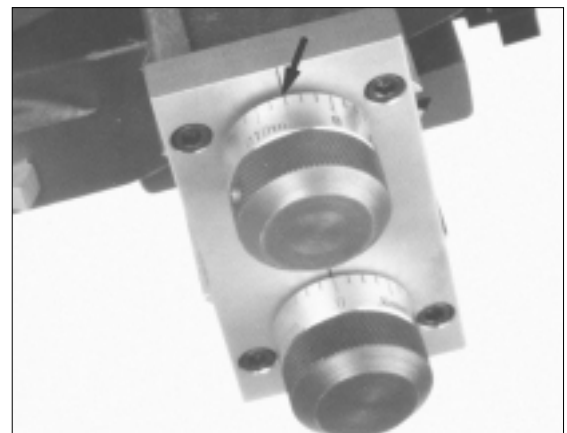


Figure 17

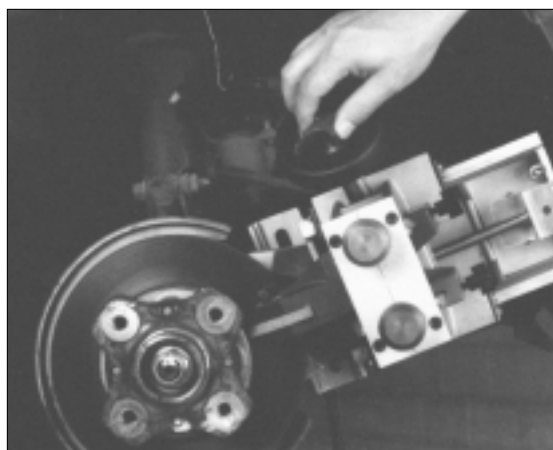


Figure 19

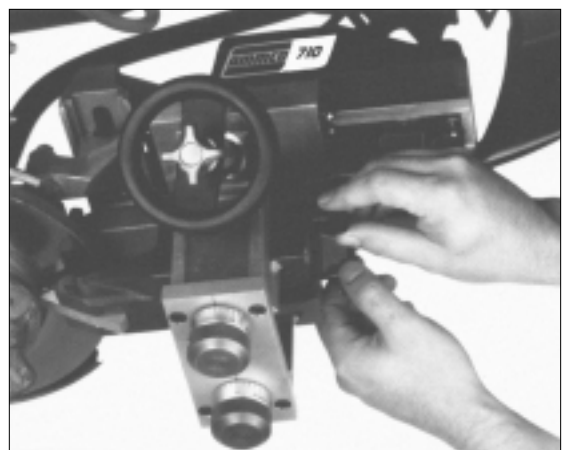


Figure 18

# Brake Lathes

## Restoring Vehicle

After reconditioning the rotors on the vehicle, it is important to return the vehicle to proper working condition.

Refer to the manufacturer's specifications for correct reassembly procedures. Use the Brake Specifications manual supplied for suggested torque values, or refer to the manufacturer's specifications.

- 1.** Remove the lathe from the vehicle.
- 2.** Remove lug nuts (if used).
- 3.** Reassemble caliper to vehicle.
- 4.** Torque all bolts to correct specifications.
- 5.** Remount wheel, and torque lug nuts.
- 6.** Pump brake pedal several times using 1 to 2 strokes before moving vehicle.
- 7.** Follow any other rules and regulations which apply when performing brake service.

## Maintenance and Service

### Oiling

Although the lathe's sliding surfaces are coated with a dry lubricant, before using the lathe, the sliding surfaces and the lead screw drive should be wiped down using an oiled rag. Use a light weight machine oil for the daily wipe-down of these parts.

Felt Wipers: Apply light machine oil to the felt way wipers.

**Note:** The use of excessive oil will cause undue wear on the lathe. DO NOT over lubricate.

### Cleaning

Keep the lathe as clean as possible for trouble free operation as well as safety and longer life. Use a brush to sweep metal chips and dust off the lathe, and out of the gearing mechanism. This should be done daily.

**Do not use compressed air to blow the lathe clean** as chips and dust may be driven between machined parts and into the ways causing undue wear.

### Gib Adjustment

Both cutters and the carriage have set screws provided to adjust the gibs.

If gibs are allowed to become very loose before an adjustment is made, all chips and dirt must be cleaned from between the sliding surfaces prior to readjustment.

*To adjust the cutter gibs:*

- 1.** Loosen the locking knob on the cutter.
- 2.** Tighten each set screw separately, while turning the depth-of-cut knob to move the cutter up and down on the ways.
- 3.** Tighten only until slight resistance is felt as the depth-of-cut knob is turned.



# Brake Lathes

**4.** Move the cutter thru its entire travel. Check to see that no tight spots (or loose spots) exist.

**5.** Push the far end of the cutter back and forth. Check to see that no rocking motion exists, Fig. 20. Re-adjust set screws if required.

**6.** Repeat for the other cutter.

*To adjust the carriage gib:*

**1.** Loosen the engagement knob in the center of the handwheel.

**2.** Tighten each of the three (3) set screws separately, while turning the handwheel to move the carriage back and forth on the ways, Fig. 21.

**3.** Tighten only until slight resistance is felt as the handwheel is turned.

**4.** Move the carriage through its entire travel. Check to see that no tight spots or rocking motion exists. Re-adjust the set screws if required.

## Storage

Use the storage case provided to store the lathe and accessories when not in use. This will protect the lathe from any damage, and keep it clean.

If all adapters, spacers, and accessories are kept inside the box, they will be easy to locate when needed again.

## Care Of Mounting Hardware

The mounting hardware is designed for mounting the lathe to the vehicle ONLY. DO NOT misuse this hardware.

DO NOT throw the bolts, spacers, and nut plates into the storage box. Use the supplied storage rack.



**Great care should be taken in the use, handling, and storage of the mounting hardware. Even the smallest nick, scratch, or loose chip can cause problems when installing the lathe onto the vehicle.**

## Installation of the Hardware Storage Rack

**Note:** Use MOUNTING HARDWARE illustration and the Parts Identification Manual to accomplish steps 1 thru 4.

**1.** Hang the storage rack inside the lathe storage chest by hooking the lip of the rack over the lip of the chest.

**2.** Fully Insert the screw, into the storage rack, to secure the rack to the storage chest.

**3.** Place the mounting bolts in the two circular holes on the left end of the storage rack.

**4.** From left to right, the following parts should be loaded on the storage rack by pushing the parts over the tongues on the rack: flat washers, nut plates, 1/8" spacers, 1/4" spacers, 1/2" spacers, 1" spacers, end 2" spacers.

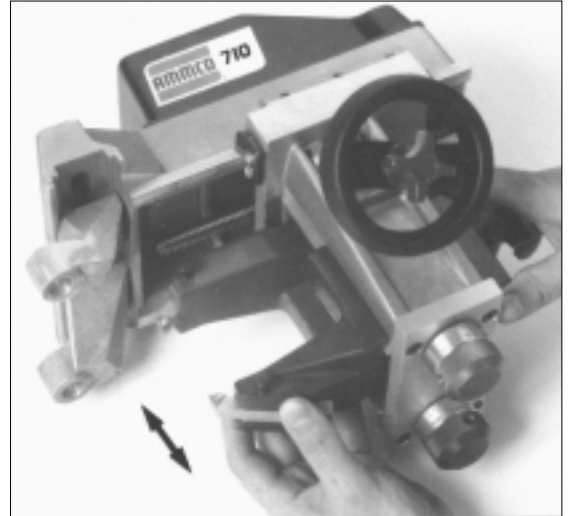


Figure 20



Figure 21

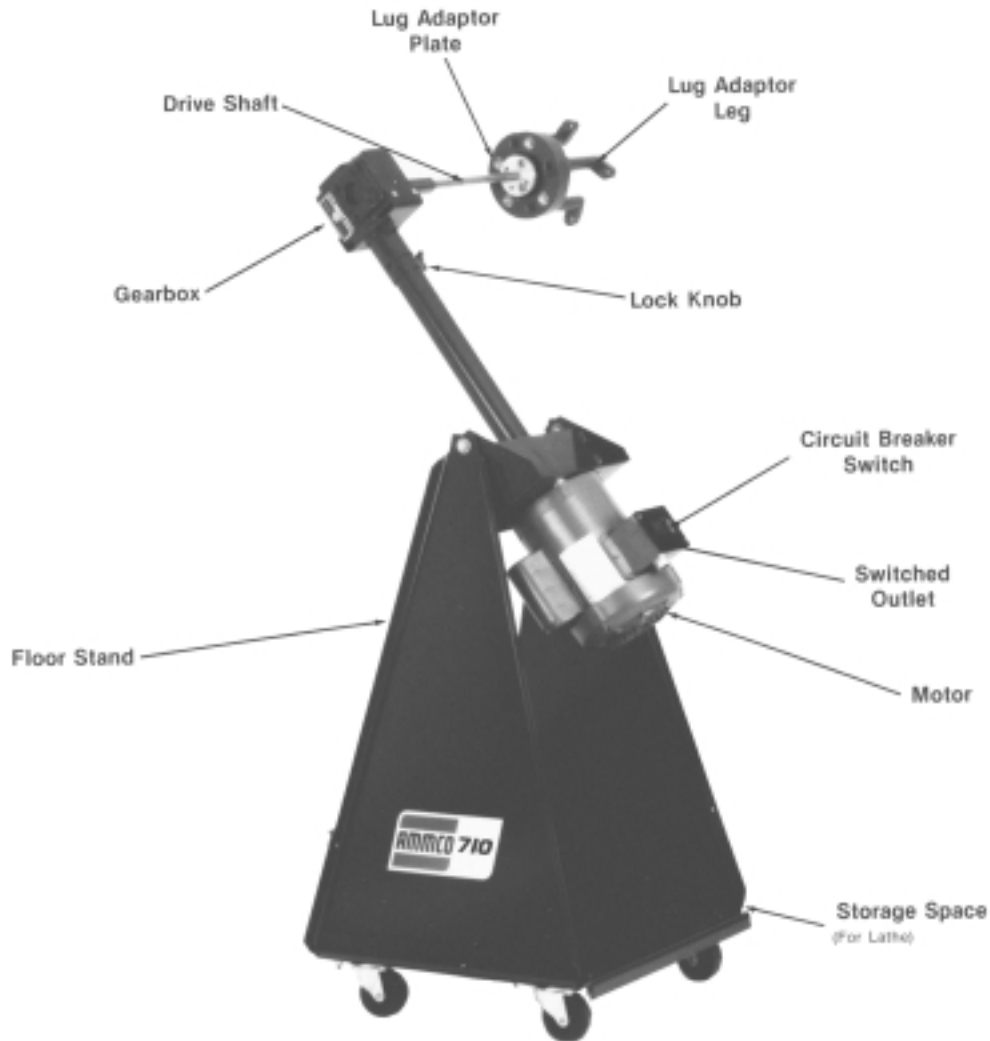
# Brake Lathes

## Components

### Know Your Unit

Compare this illustration with the unit before placing it into service. Maximum performance and safety will be obtained only when all persons using the unit are fully trained in its parts and operation. Each user should learn the function and location of all controls. Prevent accidents and injuries by ensuring the unit is properly installed, operated, and maintained.

### Model 705 Rotor Driving Unit



### Model 710 Specifications

Overall Driving Unit Height — Maximum	.58-5/8 in. (149 cm)
Spindle Drive Speed	180 RPM
Spindle Motor	1/2 HP
Drive Adapter To Floor — Maximum	.54-1/2 in. (138 cm)
Drive Adapter To Floor — Minimum	.18 in. (45.7 cm)
Electrical Specifications	115 VAC, 60 Hz, 1 Ph, 10 Amps
Drive Unit Weight	118 lbs. (53.5 kg)
Floor Space	20-1/4 in. wide x 21-7/8 in. deep (514 mm x 556 mm)

# Brake Lathes

## Electrical Wiring Requirements

The driving unit should be electrically grounded to protect the operator from shock. The unit is equipped with an approved 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding type receptacle. If your unit is for use on 115 volts, it has a plug and outlet as illustrated in Fig. 22. Use only 3-wire extension cords which have 3-prong grounding type plugs and 3-pole receptacles which accept the unit's plug. 230 volt units use a plug and outlet like those illustrated in Fig. 23.

Any line voltage lower or higher than ten percent (10%) of nominal will cause problems with the machine. If the machine receives below or above the design limit, erratic operation will ensue with a degradation in component reliability and life. By law the power company must supply power within the ten percent (10%) limit of nominal line. It is up to the customer to see that his facility is properly wired and is supplying power to the machine within its design limits. Inadequate voltages and wiring will only produce problems.

AMMCO electrical and electronic based machines are designed for nominal line voltages with variations of ten percent (10%) around the nominal, i.e.; 115 volt input could vary from 103 volts on the low side to 127 volts on the high side. These percentages also apply to 230 VAC based products.

Replace or repair damaged or worn cords immediately.

## Thermal Overload Circuit Breaker

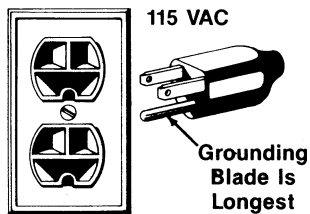


Figure 22

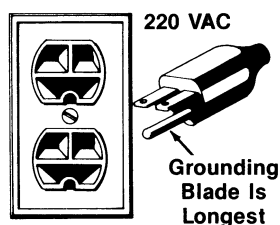


Figure 23

The driving unit is equipped with a thermal overload circuit breaker, it is located in the ON/OFF switch. If the drive unit's function is interrupted due to an overload, this switch has to be reset.

1. Turn the switch to the OFF position.
2. Unplug the drive unit from the power source.
3. Allow 10-15 minutes for the unit to cool down.
4. Make sure the cause of the overload is located and eliminated.
5. Plug drive unit back into power source.
6. Reset circuit breaker.

## Assembly Instructions

The rotor driving unit contains three (3) main assemblies. They are:

1. Floor Stand
2. Motor/Gearbox Unit
3. Lug Adapter Set

1. Center the motor/gearbox assembly between the uprights of the floor stand. Align the holes in the motor bracket with the holes in the uprights. From the outside, insert a bolt and washer through the holes. Add a washer between the upright and motor/gearbox unit, then slide a washer and locknut over the bolt on the inside of the floor stand. Repeat on the opposite side, Fig. 24.

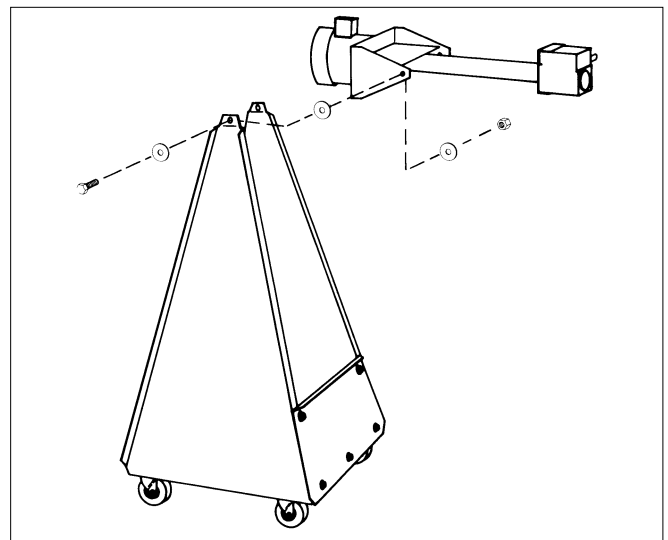


Figure 24

2. Tighten the motor bracket bolts until the motor/gearbox assembly will hold steady in any position it is rotated to.

3. Slide the drive shaft over the end of the gearbox output shaft. Tighten the two (2) set screws to securely hold the shaft in place, Fig. 25.



Figure 25

# Brake Lathes

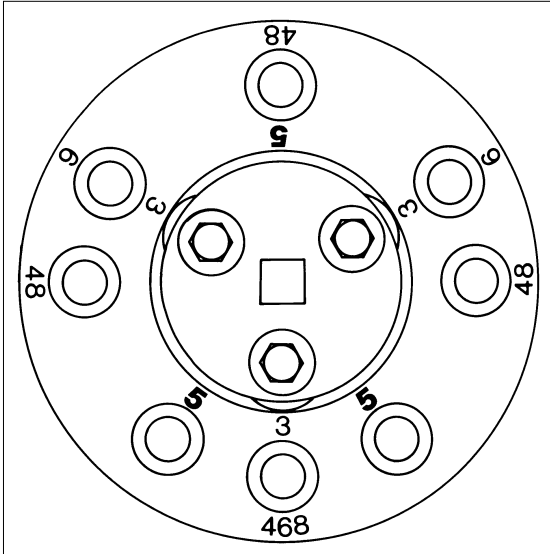


Figure 26

## Mounting of Lug Adapter

The lug adapter is designed to use the vehicle's lug nuts when mounting.

The lug adapter comes complete with four (4) legs. These are movable to adjust to the number of lugs on the vehicle.

The lug adapter is also self-centering when mounted on the vehicle's rotor/hub assembly.

The minimum legs to use on any vehicle is three. The numbering scheme on the lug adapter allows for the proper location of the legs for the bolt pattern required.

Four wheel drive vehicles and other large hub vehicles may require the optional AMMCO 4 x 4 Lug Adapter Kit, order part No. 927574.

**1.** Determine if the bolt pattern on the rotor has 3, 4, 5, 6, or 8 lugs.

**2.** Select correct pattern on plate, Fig. 26.

**3.** Reassemble legs to the plate. The legs are keyed as to only turn in one direction. Turn legs to insure they are flat against the plate. Legs should turn, without rocking.

**4.** Orient all legs to the full outside position, against the stop. Hold lug adapter up to the vehicle. Turn each leg as to go over its corresponding lug on the rotor, Fig. 27.

Start at one lug, and work in a counterclockwise direction. Slide all the legs over the lugs, Fig. 28.

**Note:** On composite rotors, use remaining lug nuts by turning the flat side against the rotor. If the style of lugs or nuts do not allow this, use washers between the rotor and the lug nut to prevent damage to the taper.

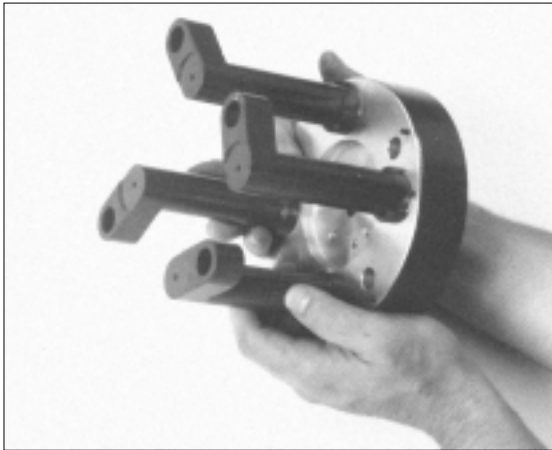


Figure 27

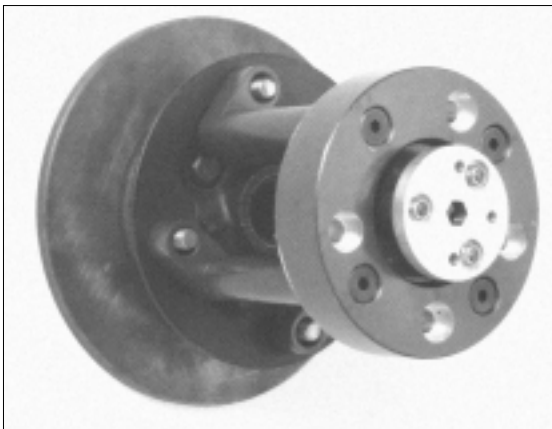


Figure 28

# Brake Lathes

## Rotor Drive Unit Operation

The Rotor Driving Unit provides the power source to turn the rotors. This unit was designed for use with the Vehicle Mounted Brake Lathe.

The driving unit will provide a constant rotation, can be adjusted to suit various lift heights, and will adapt to the various lug bolt configurations.

After the vehicle has been prepped, and the lathe has been mounted (see VEHICLE PREPARATION AND LATHE MOUNTING PROCEDURES). Mount the lug adapter to the rotor hub (see MOUNTING OF LUG ADAPTER).

The driving unit may now be rolled into position.

**1.** Select a convenient position for the driving unit floor stand. For example, if the lathe is located on the front side of the axle, it may be cumbersome to locate the floor stand on the same side, Fig. 29.

Using the vehicle's lug nuts, loosely tighten the lug adapter to the rotor hub. Check to see that EACH lug nut's taper seats in the bevel in the leg. When all nuts are properly seated, tighten lug nuts to approximately 30 ft. lbs.

**Note:** If the wheels must be turned at an angle to mount the lathe, it may be necessary to locate the floor stand on the same side to avoid contact with the vehicle.

**2.** Pivot the motor/gearbox unit to align the drive shaft with its mating hole in the lug adapter plate.

Using the vehicle's lug nuts, loosely tighten the lug adapter to the rotor hub. Check to see that EACH lug nut's taper seats in the bevel in the leg. When all nuts are properly seated, tighten lug nuts to approximately 30 ft. lbs.

Pivot the motor/gearbox unit to align the drive shaft with its mating hole in the lug adapter plate.

**3.** Loosen the knob securing the gearbox to the motor tube, and rotate the gearbox end drive shaft to an approximate right angle position relative to the tilt of the rotor, Fig. 30

**4.** Move the entire unit towards the vehicle, and align the square shaft with the adapter. Push the square shaft thru the adapter.

**5.** Adjust gearbox to insure drive shaft is as straight as possible.

**6.** Double check that vehicle is placed in "Neutral" gear.



**Serious damage to the Rotor Driving Unit may result if the vehicle is not in "Neutral" gear.**

**7.** Plug driving unit into an approved 115 VAC or 230VAC power source, refer to ELECTRICAL WIRING REQUIREMENTS.

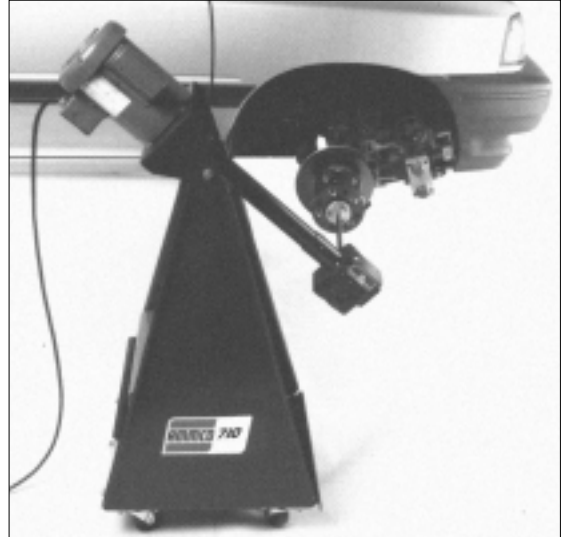


Figure 29

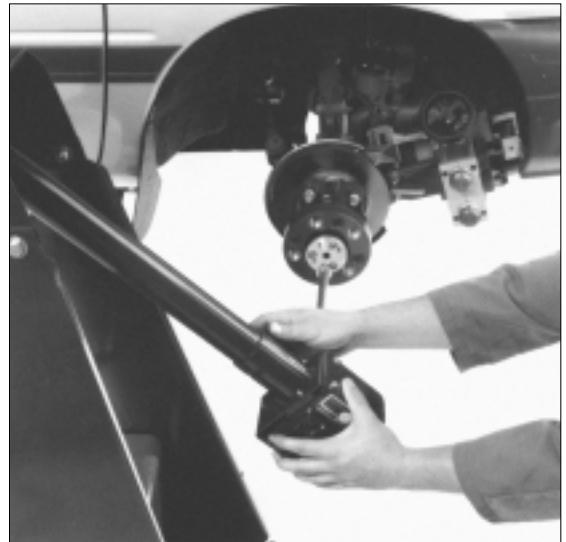


Figure 30

# Brake Lathes

The switch on the motor will turn the driving unit ON and OFF, and will also provide a switched outlet. When the drive unit switch is in the ON position, the outlet will have power.

The lathe must be plugged into the outlet on the rotor driving unit.

**8.** Before turning on the driving unit, double check to insure the lathe is clear of the rotor, and that the lug adapter is securely attached to the rotor hub.

**9.** The driving unit, as shipped from the factory, will provide a counterclockwise rotation (when looking at the rotor). Check to insure that rotation is into the face of the cutting bits.

**10.** Turn the drive unit on and proceed to recondition the rotor, see RECONDITIONING DISC BRAKE ROTORS.

# Brake Lathes

## Maintenance and Service

### Oiling

The driving unit's gearbox is permanently lubricated and sealed. No lubrication is required.

### Cleaning

Keep the driving unit as clean as possible for trouble free operation as well as for safety and long life. Use a brush to sweep metal chips and dust off the unit.

DO NOT USE COMPRESSED AIR TO BLOW THE DRIVING UNIT CLEAN as chips and dust may be driven into the electric motor and between machined parts causing undue wear or failure.

### Care of Adapter

Great care should be taken in the use, handling and storage of the adapter. Even the smallest nick, scratch, or loose chip can cause incorrect mounting to the hub/rotor assembly. The adapter was designed for use with the drive unit ONLY, do not use it for other purposes.

### Storage

The base of the floor stand was designed to hold the lathe, when it is properly stored in its case. Swing the motor/gearbox assembly to position the gearbox in either the full upright position or the lowest position possible. This will protect the driving unit from damage, as well as provide the least amount of floor space needed.

### Pivot Adjustment

If the driving unit will not stay in one set position, the pivots must be adjusted. Retighten the locknut/bolt combination until the motor/gearbox assembly will remain in one place after being set. DO NOT overtighten the pivots, as this will make the motor/gearbox hard to position.

