



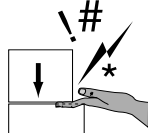
# MODEL SB1263 TAPER ATTACHMENT

## Instruction Sheet

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### ⚠ WARNING



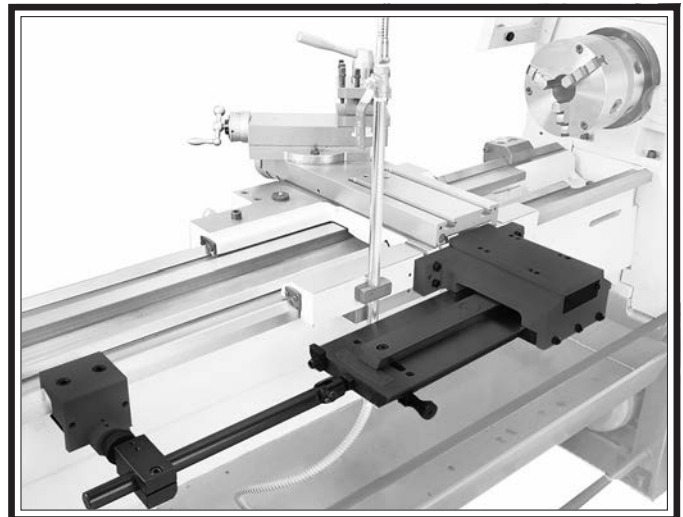
**This taper attachment is heavy! Get assistance when installing it on the lathe. Wear heavy-duty leather boots with toe protection, and keep hands and fingers away from all pinch points. Ignoring this warning can lead to severe crushing injuries!**

## Specifications

Designed for Lathe Models ...	SB1039, SB1049-52
Taper Per Inch Range .....	$\pm 0.00^{\circ}$ -0.18"
Maximum Taper Length .....	9"
Minor Inch Scale Divisions .....	0.01"
Major Inch Scale Divisions .....	0.02"
Taper Angle Range .....	$\pm 0^{\circ}$ -10 $^{\circ}$
Minor Angle Scale Divisions .....	1/2 $^{\circ}$
Major Angle Scale Divisions .....	1 $^{\circ}$
Construction .....	Cast Iron, Steel
Net Weight .....	49 lbs.
Shipping Weight .....	60 lbs.
Factory .....	Taiwan

## Introduction

This taper attachment mounts quickly to the back bedway of your lathe, as shown in **Figure 1**. Accurate tapers can be cut without repositioning the attachment or having to offset the tailstock.



**Figure 1. Taper attachment installed on rear of lathe. Note: Splash guard removed for clarity.**

The Model SB1263 features an inches scale and a degree scale. An angle adjusting knob with fine threads achieves precise control when setting tapers.

Another feature is the ability to use the taper attachment without disengaging the cross slide nut. This design allows the taper attachment to be functional at any time by simply tightening the two deadman clamp cap screws, which lock the deadman clamp to the rear lathe way.

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For Product Manufactured Since 9/11 #TS14639 Printed in Taiwan

# Identification

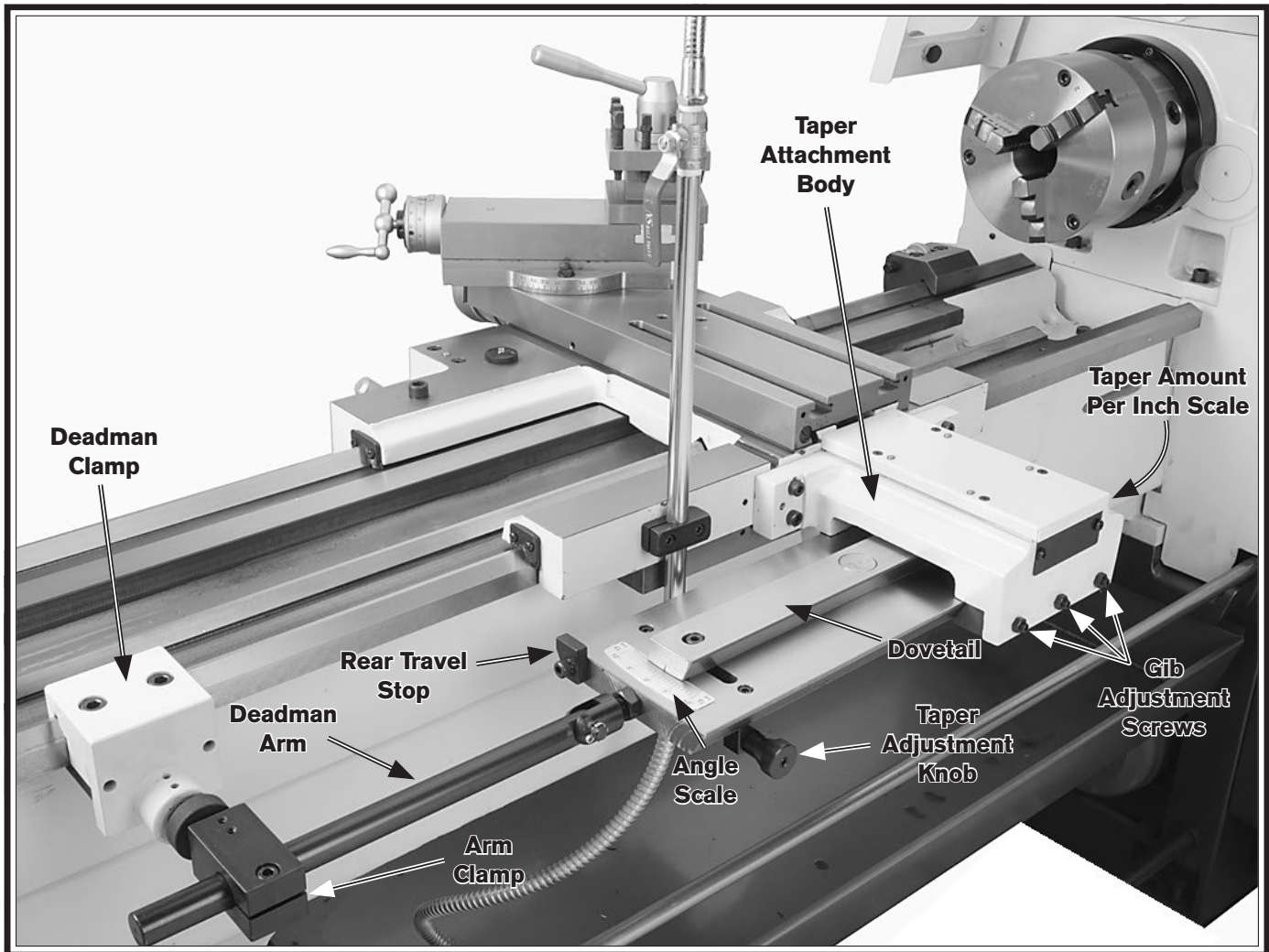


Figure 2. Model SB1263 identification.

## ⚠ WARNING

Serious personal injury could occur if you connect the lathe to power before completing the setup process. **DO NOT** connect power until instructed to do so later in this manual.

## ⚠ WARNING

Untrained users have an increased risk of seriously injuring themselves with this machine. Do not operate this taper attachment until you have understood this entire manual and received proper training.

## Unpacking

This item was carefully packaged to prevent damage during transport. If you discover any damage, please immediately call Customer Service at (360) 734-1540 for advice. You may need to file a freight claim, so save the containers and all packing materials for possible inspection by the carrier or its agent.

## Inventory

Inventory (Figure 3)	Qty
A. Cap Screws M8-1.25 x 45mm .....	4
B. Taper Attachment Assembly .....	1
C. Taper Pins 8.7 x 7.7 x 47mm .....	2
D. Deadman Clamp Assembly .....	1
E. Deadman Arm Assembly .....	1

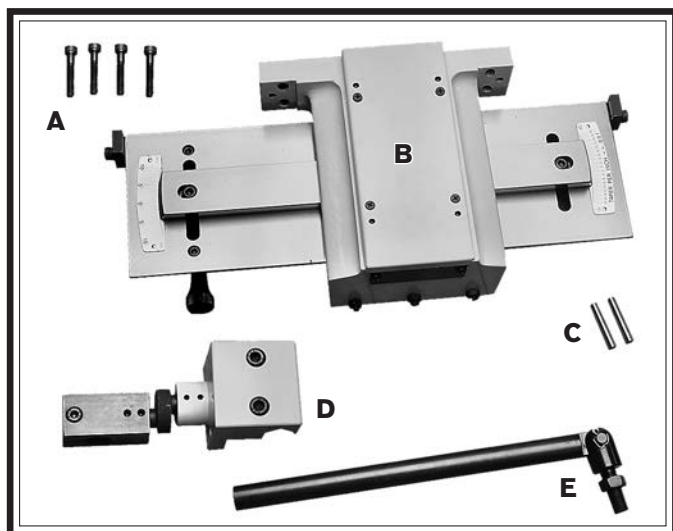


Figure 3. Model SB1263 inventory.

## Required for Setup

The items listed below are required to successfully set up and prepare this taper attachment for operation. The installation is intended to be permanent and will take approximately one hour.

### For Assembly

- Another person
- Cotton shop rags
- Mineral spirits
- Safety glasses
- Oil can with any general machine oil
- White lithium grease
- Wrench 17mm
- Hex wrenches 3, 4, 5, 6, and 8mm
- Phillips screwdriver #2
- Precision ruler
- Drill bit  $1\frac{9}{64}$ "
- Tapered drill bit 8mm
- Spiral pin reamer #6
  - Small end diameter: 0.2773"
  - Large end diameter: 0.3540"
- Small metal hammer
- Dial indicator w/magnetic base

## Cleanup

The unpainted surfaces of your taper attachment are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to remove.

Be patient and do a thorough job cleaning your taper attachment. The time you spend doing this now will give you a better appreciation for the proper care of the unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

**Note:** The inner surfaces of the taper attachment body were lubricated at the factory and do not need to be cleaned at this time.

### Before cleaning, gather the following:

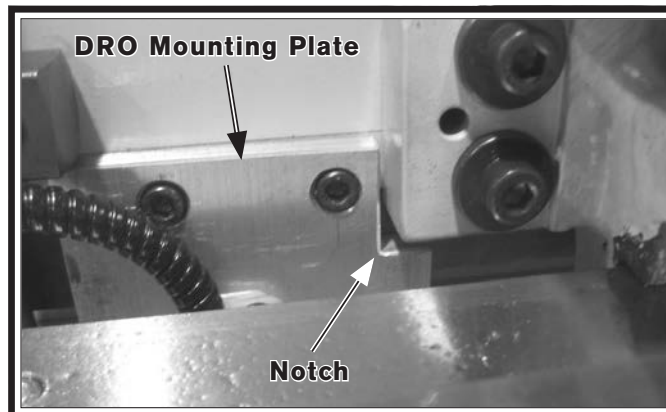
- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

### Basic steps for removing rust preventative:

1. Put on safety glasses and gloves.
2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic scraper, scrape off as much as you can first, then wipe off the rest with a rag.
4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality way oil to prevent rust.

## Installation

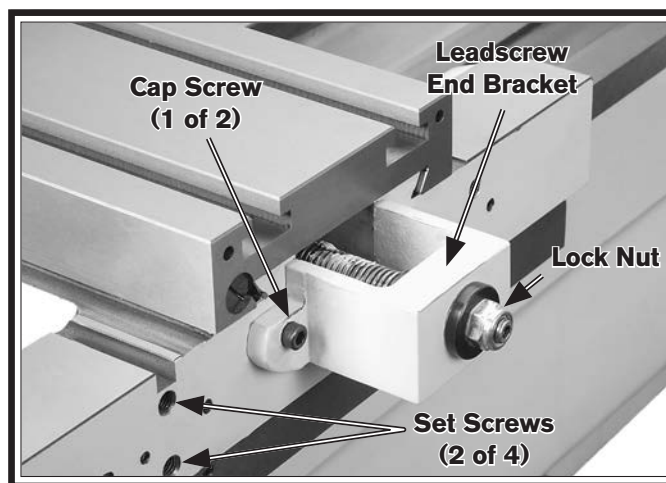
This procedure explains installation of the taper attachment on a lathe without a DRO installed. If the lathe has a Fagor DRO, the aluminum mounting plate (or the taper attachment housing) will need to have a small notch cut into it (see **Figure 4**) to ensure proper fit.



**Figure 4. Notch in DRO mounting plate, allowing taper attachment housing to fit.**

### To install the taper attachment:

1. DISCONNECT LATHE FROM POWER!
2. With the help of another person, remove the splash guard on the rear of the lathe.
3. Move the cross slide all the way toward the front of the lathe to fully expose the lead-screw end bracket (see **Figure 5**).



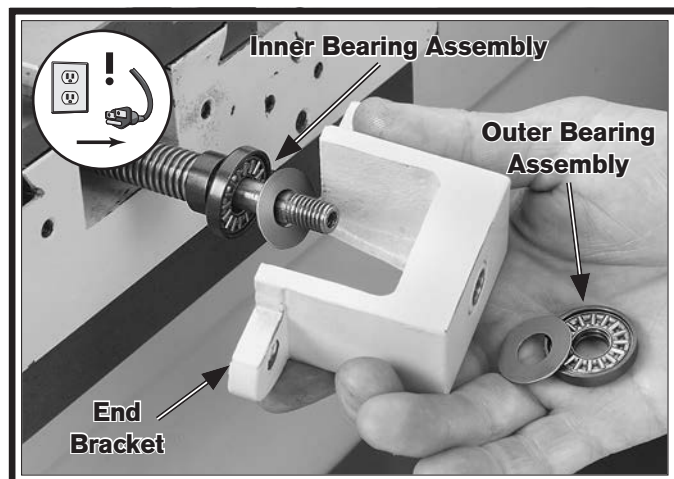
**Figure 5. Leadscrew end bracket and fasteners.**

4. Remove the two cap screws from the end bracket (see **Figure 5**).



5. Remove the four set screws (see **Figure 5**) from the saddle. These holes will be used to mount the taper attachment to the saddle in a later step.
6. Remove the lock nut (see **Figure 5**) from the end of the leadscrew.
7. Keep the bearing parts together in the same orientation as they were installed as you remove them and the end bracket from the leadscrew (see **Figure 6**).

**Important:** If a race is stuck to the surface of the end bracket, use penetrating oil or mineral spirits to separate the parts. Do not pry a race loose, as this can damage it.



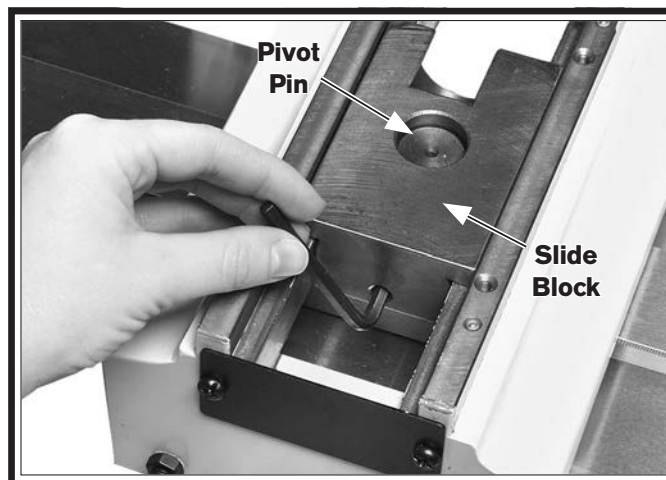
**Figure 6. Leadscrew end bracket removed.**

8. Remove the four flat head screws that secure the top cover, then remove the cover (see **Figure 7**).



**Figure 7. Attachment body top cover removed.**

9. Loosen the set screw that secures the slide block to the pivot pin, as shown in **Figure 8**.



**Figure 8. Slide block removal.**

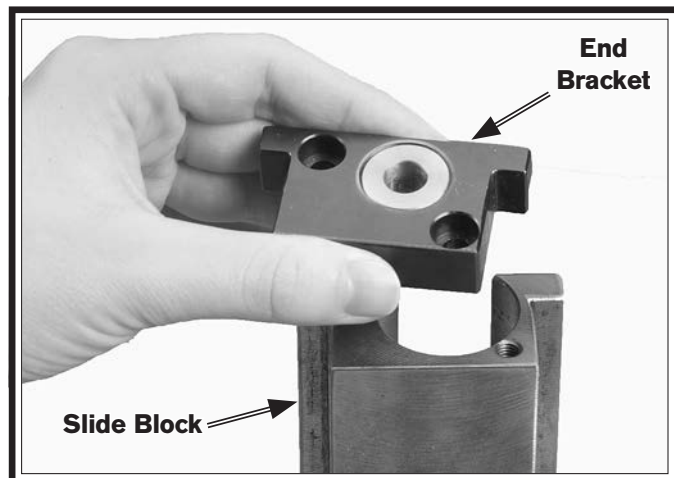
10. Lift the slide block off the pivot pin. Make sure not to dislodge the brass anti-scoring plug shown in **Figure 9**.

**Note:** If the anti-scoring plug falls out of the slide block, use a dab of grease to hold it in place.



**Figure 9. Slide block brass anti-scoring plug.**

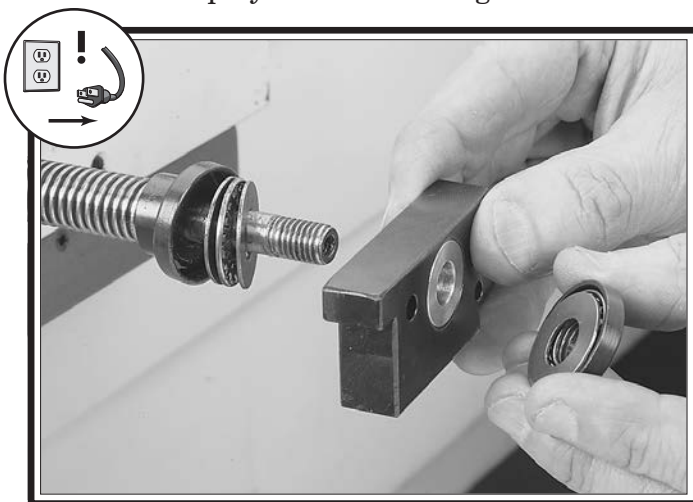
- 11.** Unthread the two cap screws that secure the end bracket (see **Figure 10**) and remove it from the slide block.



**Figure 10.** End bracket removed from slide block.

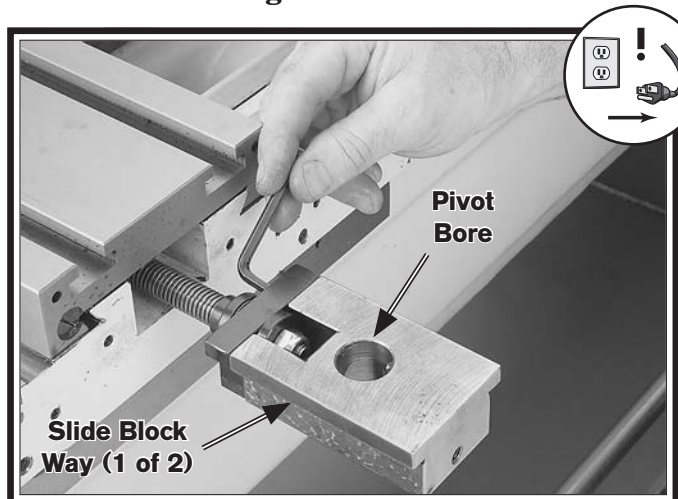
- 12.** Carefully clean the bearing parts that you removed in **Step 7** with mineral spirits. When they are dry, repack them with white lithium grease and re-assemble them.
- 13.** Install the inner bearing assembly, the end bracket, and the outer bearing assembly onto the leadscrew in the order shown in **Figure 11**, then secure them with the leadscrew lock nut removed in **Step 6**.

**Note:** Tighten the lock nut until the bearings are slightly pre-loaded and the end bracket has zero end play—do not over-tighten it.



**Figure 11.** End bracket and outer bearing assembly installation.

- 14.** Secure the slide block onto the end bracket with the two cap screws removed in **Step 11**, as shown in **Figure 12**.

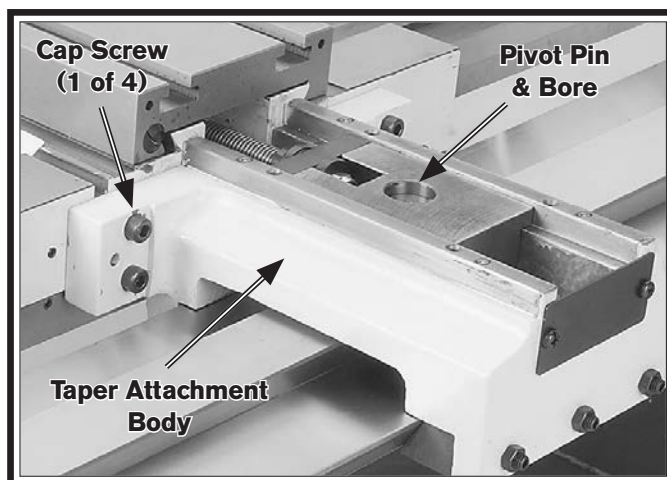


**Figure 12.** Slide block installation.

- 15.** Apply a thin coat of white lithium grease to the inside of the pivot bore and both slide block ways (see **Figure 12**).

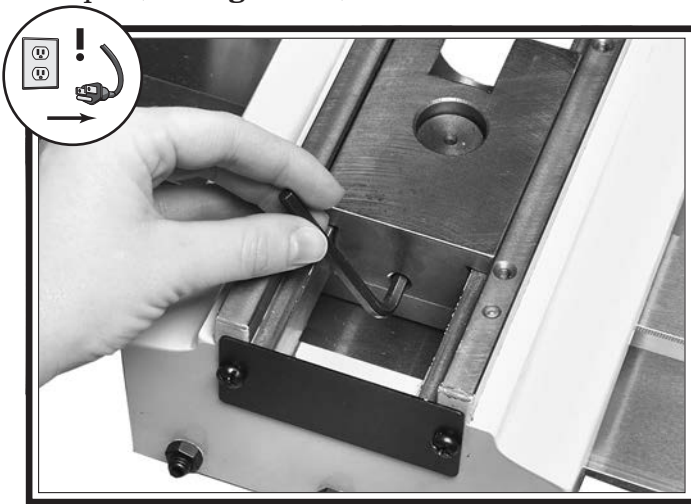
**Note:** Make sure the brass plug remains inside the slide block.

- 16.** With the help of another person, raise the taper attachment body underneath the slide block so the pivot pin slides into the pivot bore (see **Figure 13**), then secure the assembly to the saddle with the four M8-1.25 x 45 cap screws.



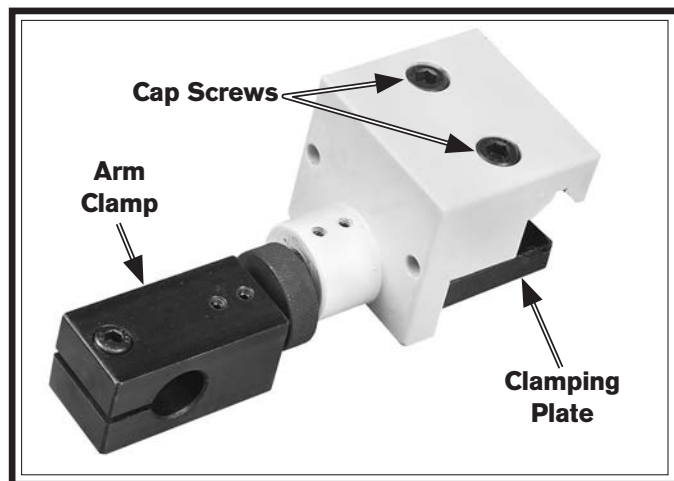
**Figure 13.** Taper attachment body installed.

17. Snug the slide block set screw until the brass plug is slightly pre-loaded against the pivot pin (see **Figure 14**).



**Figure 14. Slide block set screw adjustment.**

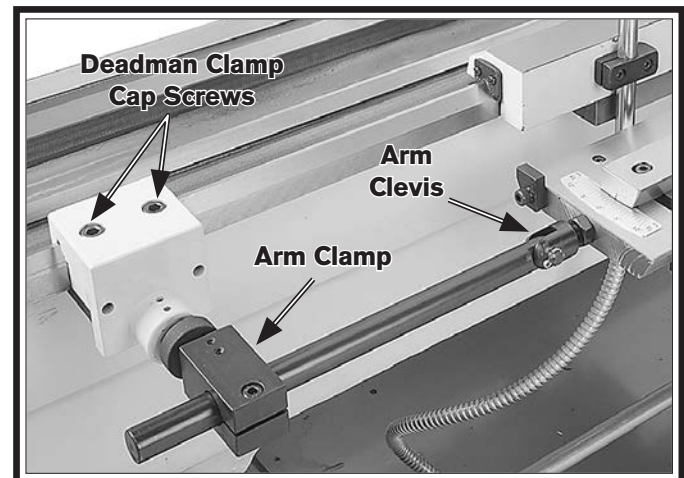
18. Replace the attachment body top cover.
19. Loosen the two cap screws on top of the deadman clamp (see **Figure 15**), then slide the clamp onto the rear bedway from the tailstock end.



**Figure 15. Deadman clamp.**

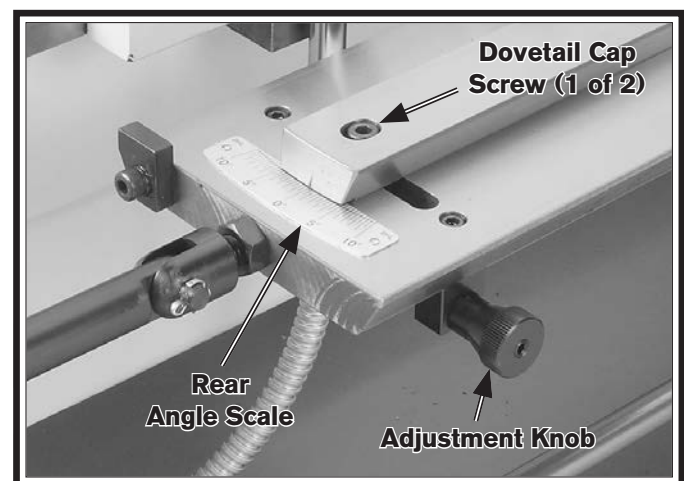
20. Thread the arm clevis into the taper attachment, then position the deadman clamp so the end of the arm slides into the arm clamp, as shown in **Figure 16**.

**Note:** Do not tighten the arm clamp cap screw or the arm clevis hex nut at this time.



**Figure 16. Deadman clamp and arm.**

21. Position the deadman clamp towards the end of the arm, then tighten the deadman clamp cap screws to secure the assembly to the bedway.
22. Loosen the dovetail cap screws at each end of the taper attachment body (see **Figure 17**).



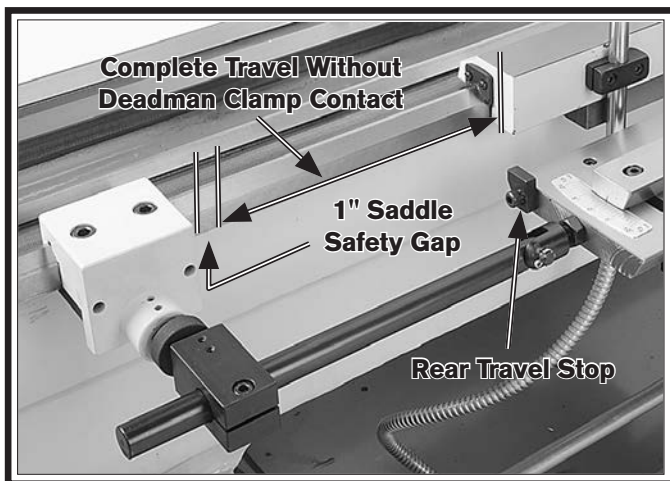
**Figure 17. Taper adjustment knob and controls.**

23. Turn the taper adjustment knob to bring the dovetail to zero on both scales.



- 24.** Re-tighten both dovetail cap screws to secure the zero setting.
- 25.** Move the carriage toward the tailstock until the taper attachment body is against the rear travel stop (see **Figure 18**).

**Note:** If necessary, reposition the deadman clamp on the arm so that it is at least 1" away from the saddle (see **Figure 18**) and re-tighten the clamp cap screws. This "saddle safety gap" will prevent the saddle crashing into the deadman clamp during taper operations.



**Figure 18. Saddle gap.**

## NOTICE

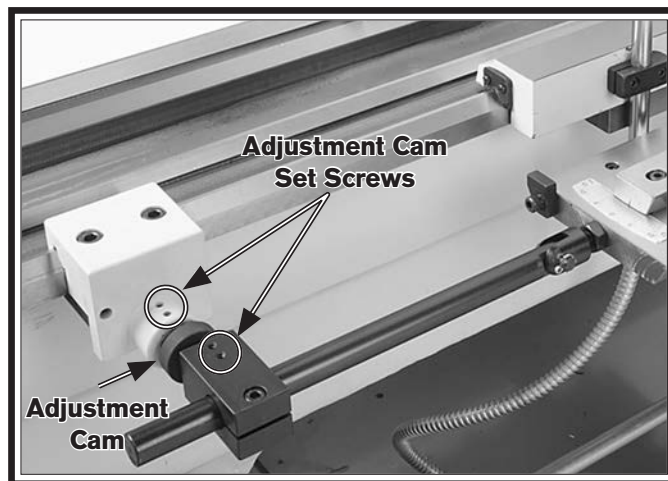
**You will need to perform Step 25 each time you secure the deadman clamp to the bedway to cut a taper to prevent the carriage crashing into the deadman clamp.**

- 26.** Move the carriage toward the headstock until the taper attachment is against the front travel stop.

**Note:** In the following step, it may be necessary to rotate the arm so the clevis allows the arm to tilt in a particular direction.

- 27.** Inspect the assembly to determine if the deadman arm is parallel horizontally and vertically with the bedway.

- If the arm is parallel horizontally and vertically with the bedway, proceed to **Step 26**.
- If the arm is not *horizontally* parallel with the bedway:
  - a.** Loosen the four adjustment cam set screws shown in **Figure 19**.

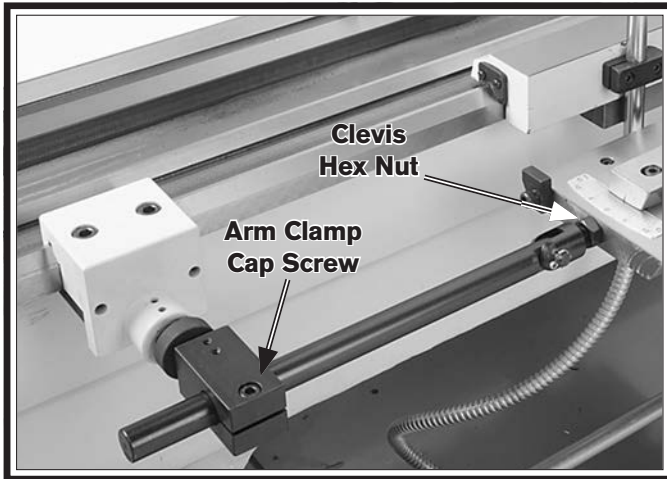


**Figure 19. Adjustment cam set screws.**

- b.** Slide the adjustment cam and arm clamp toward or away from the deadman clamp until the arm is horizontally parallel with the bedway.
  - c.** Re-tighten the adjustment cam set screws.
- If the arm is not *vertically* parallel with the bedway:
    - a.** Loosen the four adjustment cam set screws shown in **Figure 19**.
    - b.** Rotate the knurled adjustment cam until the arm is vertically parallel with the bedway.
    - c.** Re-tighten the adjustment cam set screws.

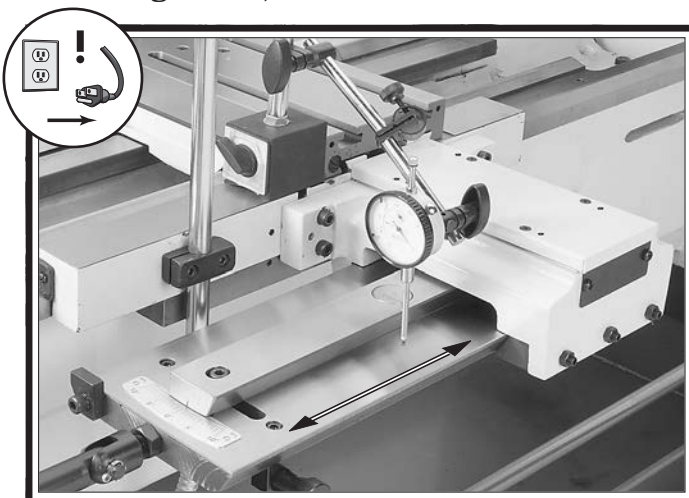


- 28.** Tighten the arm clamp cap screw (see **Figure 20**) to secure the deadman clamp assembly to the arm.



**Figure 20.** Arm clamp cap screw and clevis hex nut.

- 29.** Tighten the arm clevis hex nut to secure the attachment to the arm.
- 30.** Move the carriage toward the headstock until the taper attachment is against the front travel stop.
- 31.** Mount the dial indicator magnetic base on top of the saddle so that the indicator needle is resting on the attachment table, as shown in **Figure 21**, then zero the indicator.



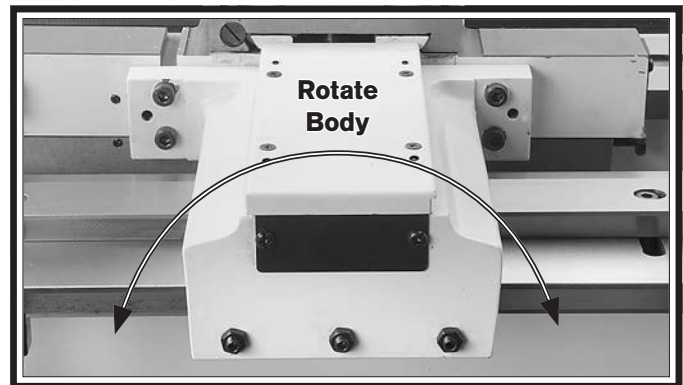
**Figure 21.** Taper attachment alignment.

- 32.** Move the carriage and taper attachment to the other end and note any change in the reading.

— If the indicator reading is 0.025" or less, the tilt of the attachment table is considered acceptable. Proceed to **Step 35**.

— If the indicator reading is greater than 0.025", proceed to **Step 33** to correct the attachment table tilt.

- 33.** Loosen the four cap screws that secure the attachment to the saddle, then rotate the attachment assembly left or right to correct the table tilt (see **Figure 22**).



**Figure 22.** Attachment table tilt adjustment.

- 34.** Re-tighten the four cap screws to secure the setting, then repeat **Steps 32–33** to re-check the table tilt.

- 35.** Drill two  $\frac{19}{64}$ " holes into the saddle through the pilot holes in the attachment casting (see **Figure 23**).



**Figure 23. Taper pin pilot holes.**

- 36.** Ream the holes with the #6 spiral pin reamer deep enough so that the taper pins will fit flush to the attachment casting surface.
- 37.** Carefully tap the taper pins into the holes until they are flush with the casting surface to secure the attachment tilt alignment with the saddle.

**Note:** If you need to remove the taper pins, the internal pin threads are M6-1.

- 38.** Re-install the lathe splash guard.

## Operation

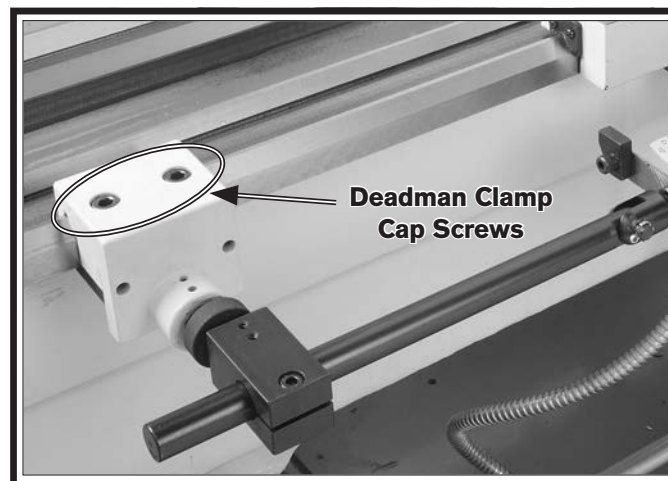
The taper attachment is engaged for operation when the deadman clamp is tightened on the bedway and disengaged for operation when the deadman clamp is loosened.

### Engaging Taper Attachment

1. DISCONNECT LATHE FROM POWER!
2. Position the cutting tool at the proper beginning position for the turning operation.

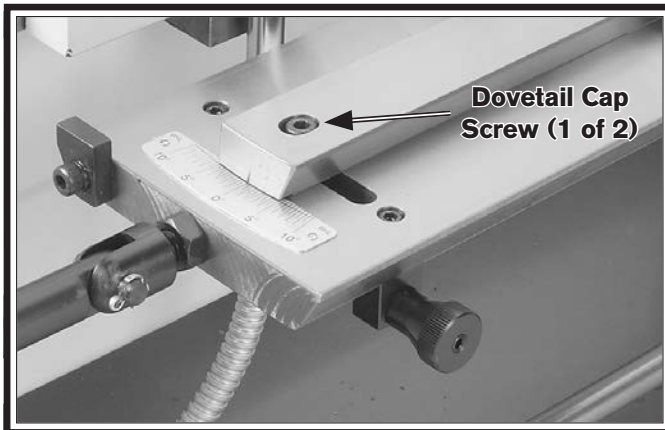
**Note:** Make sure that there will be at least 1" clearance between the deadman clamp and the saddle when the saddle is moved all the way toward the tailstock (refer to **Step 25** on **Page 8** for additional information).

3. Tighten the deadman clamp cap screws to secure the clamp and taper attachment to the bedway (see **Figure 24**).



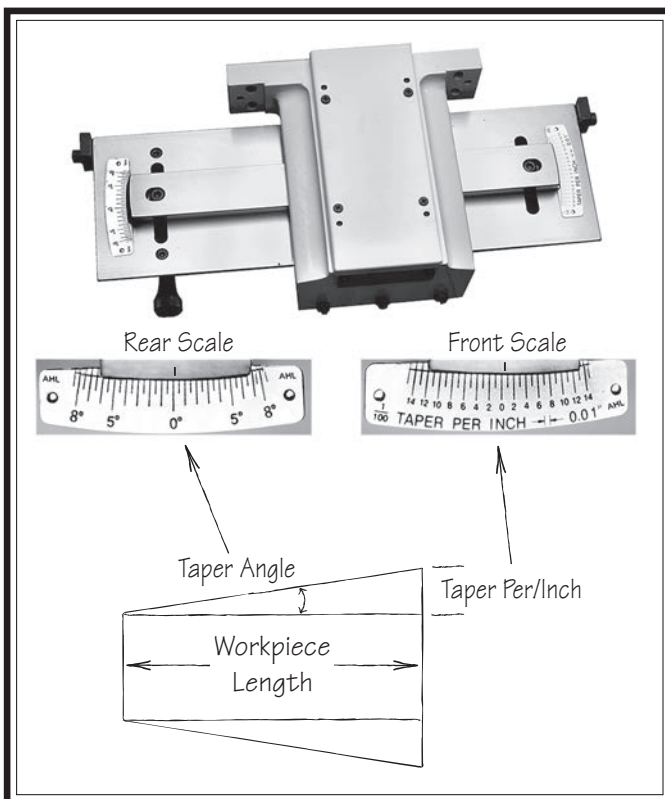
**Figure 24. Deadman clamp cap screws.**

- Loosen both dovetail cap screws (see **Figure 25**).



**Figure 25. Dovetail cap screw (1 of 2).**

**Note:** Depending on the operation, use either the rear scale (degrees of taper) or the front scale (amount of taper per inch of workpiece) in the next step (see **Figure 26**).



**Figure 26. Rear and front scales.**

- Turn the taper adjustment knob to set the required taper, then re-tighten both dovetail cap screws.

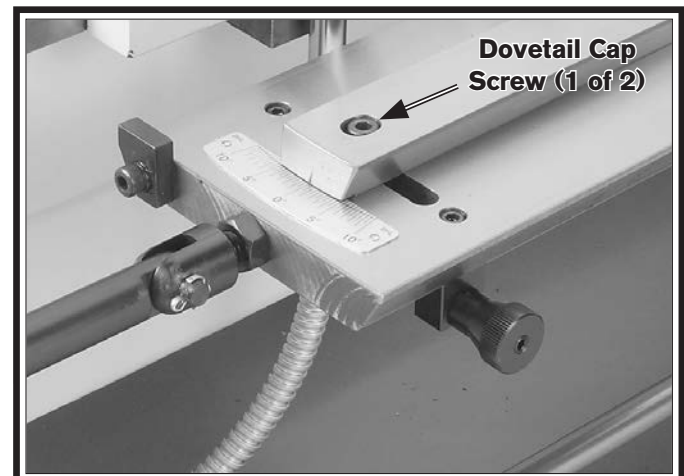
## Disengaging Taper Attachment

- DISCONNECT LATHE FROM POWER!
- Loosen both deadman clamp cap screws (see **Figure 27**)



**Figure 27. Deadman clamp cap screws.**

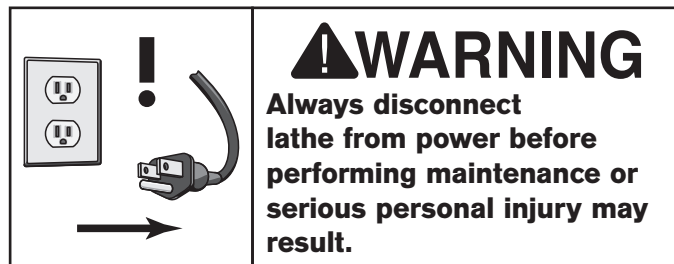
- Loosen the dovetail way cap screws at each end (see **Figure 28**).



**Figure 28. Dovetail way cap screw (1 of 2).**

- Turn the taper adjustment knob until both scales read zero.
- Re-tighten both dovetail way cap screws.

## Maintenance



### Maintenance Schedule

For optimum performance from your taper attachment, follow the maintenance schedule below and refer to any specific instructions given in this section.

#### Daily

- Check/correct loose mounting fasteners.
- Clean debris and grime from all attachment surfaces.
- Clean/protect attachment table and dovetail ways.
- Correct any other unsafe condition.

#### Monthly

- Disassemble, clean, and lubricate slide block, pivot pin, and internal ways.

## Cleaning & Protecting

Typically, the easiest way to clean debris and grime from the attachment is to use a wet/dry shop vacuum that is dedicated for this purpose. The small chips left over after vacuuming can be wiped up with a slightly oiled rag. Avoid using compressed air to blow off chips, as it may drive them deeper into moving surfaces and could cause sharp chips to fly into your face or hands.

To keep the unpainted surfaces of the attachment table and dovetail ways rust-free and in top condition, apply a thin coat of a quality way oil after cleaning them.

### Lubricating Slide Block, Pivot Pin, & Internal Ways

1. DISCONNECT LATHE FROM POWER!
2. Referring to the assembly instructions, remove the attachment body top cover and the slide block.
3. Clean the slide block, pivot pin, and the internal ways with mineral spirits and shop rags.

**Important:** Make sure the brass plug in the slide block set screw hole remains in place during cleaning and lubrication.

4. When dry, apply a thin coat of white lithium grease to all surfaces of the slide block, pivot pin, and internal ways of the attachment body, then re-assemble the parts.



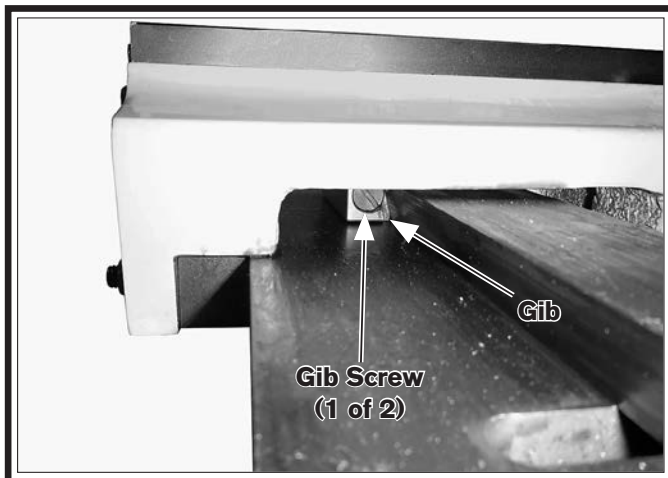
## Gib Adjustment

The goal of adjusting the gib screws is to remove sloppiness or “play” from the ways without over-adjusting them to the point where they become stiff and difficult to move.

In general, loose gibs cause poor finishes and inaccurate tapers; however, over-tightened gibs cause premature wear and make it difficult to move the carriage and cross slide.

### Internal Gib

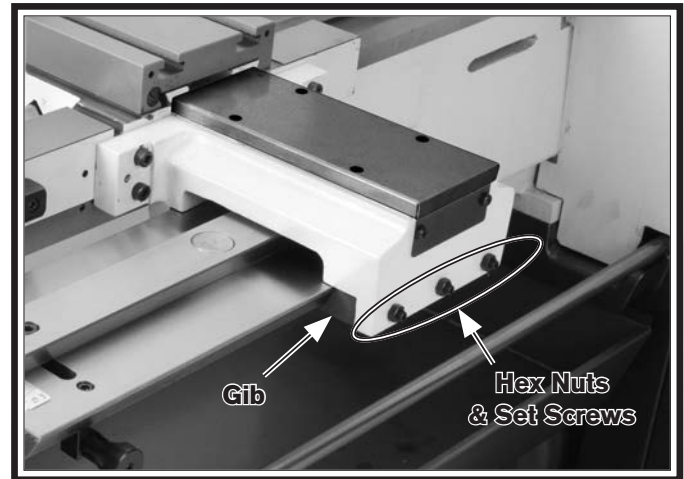
The internal gib is tapered and held in position by a screw at each end (see **Figure 29**). To adjust this gib, turn one screw  $\frac{1}{4}$  turn clockwise and the other screw  $\frac{1}{4}$  turn counterclockwise, so both screws move in the same direction and the same amount. Test the feel of the setting by moving the carriage, and adjust the gib screws as necessary to make it tighter or looser.



**Figure 29. Internal gib.**

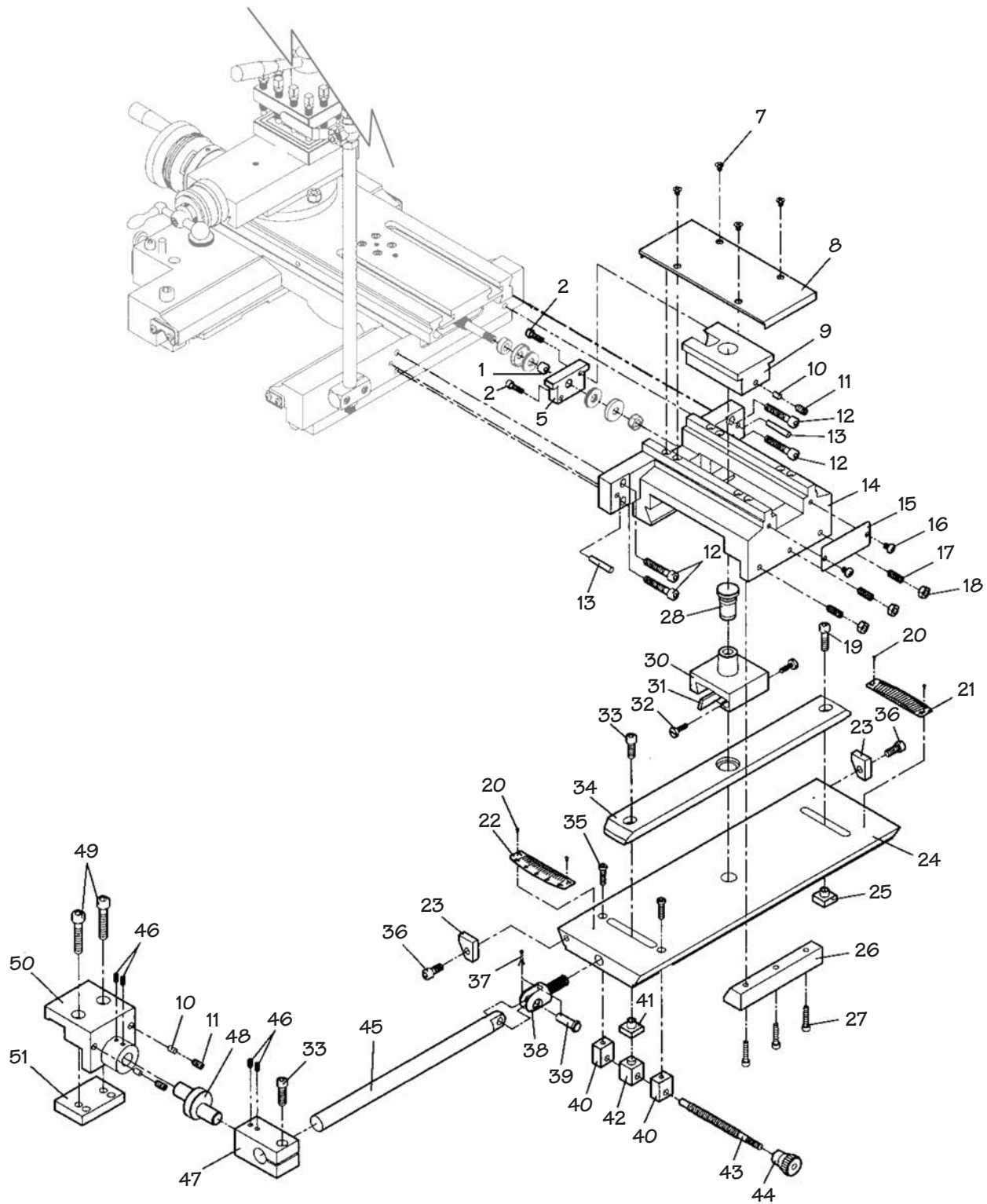
### External Gib

The external gib is wedge-shaped and is held in position by three set screws (see **Figure 30**). To adjust this gib, loosen the hex nuts and turn the set screws in equal amounts. Test the feel of the setting by moving the carriage, and adjust the set screws as necessary to make it tighter or looser. When satisfied with the movement, re-tighten the hex nuts to secure the setting.



**Figure 30. External gib.**

# Parts Breakdown



# Parts List

REF	PART #	DESCRIPTION
1	PSB1263001	BUSHING BRASS
2	PSB1263002	CAP SCREW M6-1 X 20
5	PSB1263005	END CAP
7	PSB1263007	FLAT HD SCR M6-1 X 8
8	PSB1263008	TOP COVER
9	PSB1263009	SLIDE BLOCK
10	PSB1263010	BRASS PLUG
11	PSB1263011	SET SCREW M8-1.25 X 16
12	PSB1263012	CAP SCREW M8-1.25 X 45
13	PSB1263013	TAPER PIN
14	PSB1263014	BODY
15	PSB1263015	PLATE
16	PSB1263016	PHLP HD SCR M6-1 X 10
17	PSB1263017	SET SCREW M8-1.25 X 25
18	PSB1263018	HEX NUT M8-1.25
19	PSB1263019	CAP SCREW M8-1.25 X 30
20	PSB1263020	STEEL FLUTED RIVET 2 X 5MM
21	PSB1263021	INCH SCALE 0-14.5
22	PSB1263022	DEGREE SCALE 0-8.5
23	PSB1263023	STOP
24	PSB1263024	TABLE
25	PSB1263025	T-NUT M8-1.25
26	PSB1263026	TABLE GIB
27	PSB1263027	CAP SCREW M6-1 X 30

REF	PART #	DESCRIPTION
28	PSB1263028	PIVOT PIN
30	PSB1263030	PIVOT SADDLE
31	PSB1263031	PIVOT SADDLE GIB
32	PSB1263032	GIB SCREW
33	PSB1263033	CAP SCREW M8-1.25 X 25
34	PSB1263034	DOVETAIL WAY
35	PSB1263035	CAP SCREW M6-1 X 25
36	PSB1263036	CAP SCREW M8-1.25 X 20
37	PSB1263037	COTTER PIN 4.5 X 30MM
38	PSB1263038	CLEVIS
39	PSB1263039	CLEVIS PIN
40	PSB1263040	NUT BLOCK M6-1 X 25
41	PSB1263041	T-NUT M8-1.25
42	PSB1263042	NUT BLOCK
43	PSB1263043	LEADSCREW
44	PSB1263044	KNOB
45	PSB1263045	DEADMAN ARM
46	PSB1263046	SET SCREW M6-1 X 12
47	PSB1263047	ARM CLAMP
48	PSB1263048	ECCENTRIC CAM
49	PSB1263049	CAP SCREW M10- 1.5 X 50
50	PSB1263050	DEADMAN CLAMP
51	PSB1263051	DEADMAN PLATE



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